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TABLE OF CONTENTS ON LAST PAGE OF READING**THE AMERICAN "RUBBER TRUST"**

BRAZILIAN DEPUTIES, three in number, before the House sitting in Rio Janeiro stated that the American "Rubber Trust" had deliberately forced the price of rubber down to its present level. Further, to quote one excited speaker, "The rubber planter, losing interest, is abandoning plantations which the Americans are acquiring at infinitesimal prices, becoming lords of our soil."

This is so interesting that we would fain ask for information. First, what is the American Rubber Trust? We know of no rubber company among the dozen big and three hundred smaller that can in any way be called a trust. Certainly each buys rubber separately and competitively. Second, what Americans are buying *seringaes*? (There are no Brazilian rubber plantations.) Frankly, Amazonian rubber lands are not investments that appeal to capitalists or to rubber men at present. The statement that they are being bought up, therefore, is hardly credible.

The trouble is that the Brazilian rubber producer is in a bad way. It is not his fault, nor is it the fault of the

American rubber manufacturers. It is simply because rubber planters in the Far East can produce rubber cheaper than can the Brazilian *seringueiro*. Moreover, they have produced it in such quantity that the market became glutted and prices accordingly dropped. It is too bad, and all friends of Brazil are sorry. It is only fair, however, to point out that it is the law of supply and demand that is doing the grinding, and no trust, American or other.

THE IMPORTANCE OF CABLE SYSTEMS

WHILE the United States easily leads the world in automobile tire making, and while there is no reason to doubt that it will long retain its primacy in that great division of the rubber industry, it is still a negligible factor in the production of another and important divisional product, namely, ocean cables. Of the 532 submarine cables privately owned, covering over 262,000 miles, and 2,628 government-owned lines, with a length of 56,000 miles, nearly 50 per cent are owned or controlled by British interests. This fact alone largely explains the great success of British foreign trade, for there is hardly a port in the world that a British ship enters but in which it can find a British cable office. The United Kingdom is a great financial power largely because, through its vast network of cables, British traders can easily keep ahead of rivals in the great commercial struggle with other nations.

It is obvious, therefore, that if the United States is to maintain a commanding position in international commerce it, too, must have an adequate and independent cable system of its own. Indeed, some such interoceanic links must be provided to render truly effective the nation's great plans for a merchant marine contemplating an outlay of even thousands of millions. Else American foreign trade must be conducted largely over systems owned by powerful commercial rivals, and American traders suffer a serious handicap. Even such non-American systems are already congested with trade and news communications, so that an American cable system would really serve a pressing international need, as it should also prove a profitable investment. Atlantic cables now carry about four times the traffic they did in 1913, while Pacific cable traffic has increased nearly nine times in the same period, making the situation there actually acute. True, there has been some talk of relief, but the laying of another Pacific cable is still "in the air," although the cost of such an immensely helpful medium of communication would probably be no more than that of the two \$40,000,000 battle cruisers which the United States and Japan are said to be preparing to build.

The core of the cable used today consists of strands of copper wire covered with gutta percha. Attempts have been made to substitute rubber for gutta percha, but for

deep sea use nothing has been found to take the place of gutta percha as a dielectric. The major part of the world's supply comes from the Malay Archipelago, and there British interests are credited with being in complete control of the output. Almost all the submarine cables in the world are made in England, that country being practically the only one that has developed a cable manufacturing industry of importance.

Americans have long cherished the hope of making cables on their own account and growing gutta percha in the Philippines, but such expectation is not likely to be realized in the near future. Soil and climatic conditions may, indeed, be favorable in the American insular possessions in the Far East for the production of gutta percha, but the *Palaquium*, unlike the *Hevea*, is a tree that matures slowly, and many years would be required to develop a plantation that would yield a fair return on the large amount of labor and capital that would be involved in such an enterprise.

AMERICAN OVERSEAS PLANTATIONS

WITH a surplus of raw rubber on their hands, variously estimated at from 75,500 to 100,000 tons, not counting stocks held in warehouses, much of it bought at from 40 to 50 cents a pound; and holding 159,000 acres of rubber plantations in the East, costing between \$15,000,000 and \$16,000,000 and now worth double that amount, American rubber manufacturers are not, as some of their overseas friends fancy, at all indifferent to the depression which has been troubling the foreign rubber producers. Indeed, American rubber concerns, with a plantation investment of about 3 per cent of the total money expended for the raising of rubber, yet consuming 70 per cent of the world's output, fully realize that their interests are identical with those of the rubber growers; and they are ready to cooperate in any proper manner to stabilize the price of the raw product. Signs are not wanting, too, that in the near future, with the rapid increase in the foreign trade of the United States, other American investors besides rubber manufacturers will be making ventures in a large way in rubber planting in the East, as well as taking an active part in various big commercial enterprises overseas, just as the British have long done in all parts of the globe.

The large American plantation holdings are divided among four corporations. The United States Rubber Co. has put \$10,000,000 into Sumatra, having 43,000 acres bearing, 11,000 planted but not bearing, and 63,000 reserved, totalling 117,000 acres. Thus it owns and operates the largest single rubber plantation in the world, and yet the product falls far short of the requirement for its forty-one factories in the United States, sixteen in Canada, and one in England. The Goodyear Tire & Rubber Co. has invested about \$4,000,000 in 20,000 acres in Sumatra, of which 2,000 are bearing, 9,000 planted but not bearing, and 9,000 cleared but not planted. The Man-

hattan Rubber Manufacturing Co. owns 2,000 acres valued at about \$500,000 in Java, 1,200 of which are bearing, and 800 planted; while the Continental Rubber Co. owns 20,000 acres in Sumatra on which about \$1,000,000 has been spent, 2,000 acres being planted but not bearing, 2,000 acres cleared but not planted, and 16,000 reserved.

RUBBER PLANTATION CONSERVATION

TO AVERT soil exhaustion and insure steady yield the farmer rotates crops but to the rubber planter such recourse is not feasible. Hence must he depend almost wholly upon inherent soil fertility, manuring, careful cultivation, and judicious tapping. Naturally the question arises, granted a deep, rich soil, may not forced growth and especially severe draughts on the latex ultimately lessen the fruitfulness of even the most fertile soil? Experts, however, declare that even three decades of planting have not yet shown any perceptible effect on the soil itself. But a marked decadence is shown in many of the first rubber trees planted, trees that should now be in their prime, and all through mistreatment. In the boom days a great number were hurriedly planted among fungi-infested jungle stumps that induced root troubles, and since then too eager latex gatherers have fairly bled them to death. Like poor humans, overworked, they got so weakened that when the "brown bast" came their low vitality left them an easy prey.

Happily, a more enlightened policy is now pursued by progressive planters. Excessive tapping has been found to be akin to killing the goose that laid the golden egg, and is taboo on all well-regulated estates. Felling, burning and clearing of jungles, as well as cultivating, are now done in a thoroughgoing way with the aid of modern machinery, chiefly from the United States. Planting and tapping are being done in a systematic, scientific way, conservation being stressed quite as much as utmost yield. All this with the "skip-a-day" plan of tapping in force as part of the crop-restriction scheme entered upon by the Rubber Growers' Association and other interests, by insuring more rest for the trees, should go far toward putting the great planted areas in a finer condition than they have ever been.

THE RUBBER ASSOCIATION'S NEW PRESIDENT

AGAIN has The Rubber Association shown wisdom in the selection of chief executive. Harry T. Dunn, a live wire in rubber and motor manufacture, is one who will add strength to the organization and guide it to even greater influence and usefulness. His record with The Fisk Rubber Co. and the War Industries Board and his helpfulness on important association committees all are universally known and are pleasantly prophetic. We congratulate The Rubber Association, and the rubber trade at large.

Twenty-First Annual Dinner of The Rubber Association of America

WITH eight hundred and fifty members and guests in attendance, an excellent dinner, good music, three distinguished speakers, and a brilliant assemblage of ladies to grace the occasion, the twenty-first anniversary dinner of The Rubber Association of America, Inc., at the Waldorf-Astoria, on the evening of January 10, 1921, was a distinct success.

After the repast, which was accompanied by a program of popular selections by the orchestra and much good fellowship on the part of the diners, the postprandial exercises were led by the retiring president, Homer E. Sawyer, who spoke and later introduced guests of the evening with characteristic brevity and fitness.

FORMER PRESIDENT SAWYER'S ADDRESS

Mr. Sawyer delivered no prolonged valedictory, but alluded in a few well-chosen words to the accomplishments of the Association during the past two years and thanked members one and all for their unfailing and whole-hearted support. Said he:

Your enviable financial position is due to the broad-minded spirit of all the manufacturers of this association who have adhered to the informal agreement to pay three cents per 100 pounds on all rubber purchased, and this, together with your dues, has placed your directors in a position to pay all necessary expenses, to make certain proper contributions, to add materially to your invested reserves and leave a very comfortable cash balance on hand. Your numerous sub-committees have been indefatigable in their work for the welfare of the association and have with the utmost vision and unselfishness worked together for the good of all, and all of the work has been concentrated and centralized under our able general manager, Mr. Viles, and his able staff.

Your business represents a magnitude of something considerably over a billion dollars annually, and business of such magnitude, the products of which are necessary to nearly all of the other industrial life of the country, has a distinct duty to perform along progressive and cooperative lines, and we do not know how it can best be done except with the aid of a helpful aggressive association.

Under the wise leadership of the few, none of us has any doubt of our realizing our fondest hopes and aspirations for The Rubber Association of America.

CONGRESSMAN FESS' ADDRESS

Introduced as a wise and experienced legislator and a scholarly economist who has a wide sympathy with the legitimate requirements of commerce, and who ably represents that growing force in national affairs which justifies faith in the future cooperation of business and legislation. Honorable Simeon D. Fess, United States Representative from Ohio, outlined some of the early duties of Congress and the incoming administration. His sound and welcome doctrine and his manifest optimism were enthusiastically received.

READJUSTMENT OF COSTS AND TAXES INEVITABLE

How the inevitable liquidation of the war can be effected without disaster is not only the problem of the legislator but of every business man, he said, and problems inherited from the war should be solved in council with those who bear the burdens. Readjustment must take us from a world stage to a business basis; must get us down from a very high cost level, if possible, without danger. The war machine, he explained, had to be built quickly and every step pushed costs higher—employing the major portion of labor, shortening the basic day, higher overtime wages, increasing the number of workmen to the piece, transporting and housing labor, competition with industry for labor, cost plus contracts, bond

issues and excess profits taxes. The Government, he pointed out, wanted profiteers taxed heavily, but ignored the fact that excess profits taxes were passed on to the consuming public to pay in higher prices.

HOW THE GOVERNMENT CAN HELP

As a beginning toward lower cost levels, he asserted that the cost of government can be reduced below the estimate of four billion dollars annually, a total six times the cost in 1912 and four times the cost in 1917. The war has increased the



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HON. SIMEON D. FESS

public debt from one to twenty-four billion dollars, on which the interest alone is \$1,200,000,000, or nearly the total cost of government in 1912. Therefore it is the duty of Congress to cut all appropriations as far as is safe. A large army, he maintained, is unnecessary and naval estimates can also be reduced, effecting a saving of at least one billion dollars. The present unscientific system of taxation must be revised with repeal of the excess profits tax and reduction of the higher ranges of the surtax to avoid forcing the investment of incomes in non-taxables and thus destroying the purposes of the tax system. Congress, he said, will soon adopt a budget system to put the

Government on a business basis. Government departments must be reorganized to save useless duplication. Customs will probably be revised to yield more than double the present three hundred million dollars annually. A final sales tax would probably yield \$450,000,000 additional.

THE BUSINESS OUTLOOK

Regarding the immediate future of American business he said in part:

Now, gentlemen, what of the future? What can we expect in business? Why should men lose faith? Why should we lack confidence? Think of the position of this nation. We have today harvested the largest crop from the agricultural fields that we have in any years, save three. There has been no famine, there has been no failure. Our fields have responded until our food products and the agricultural supply is abundant.

AN IMPROVED TRANSPORTATION SYSTEM

We have had the boldness—and it has taken courage—to enact a Transportation Act, not in the interest of the owners of the railroads, not in the interest of the security holders, not in the interest of labor, but in the interest of all these people who are included in the public for whom we must legislate; and consequently, you have seen a remarkable increase in the efficiency of our transportation system, that now promises to get back to a form of efficiency where, instead of increasing cost and decreasing efficiency, you ought to decrease cost and increase efficiency, which is the law of progress.

BETTER RELATIONS BETWEEN LABOR AND CAPITAL

Not only have we entered upon a safe transportation system, but, gentlemen, we have seen a new relationship between labor and capital. These two cannot be enemies. They are beginning to see the necessity of cooperation, of a better spirit toward labor by capital, and a better spirit of capital toward labor. We recognize that each depends upon the other and we see, now, instead of decreasing the product of labor and increasing the cost, we are beginning to increase the product and decrease the cost, which is again the law of progress.

We must not undertake to control the price of labor or anything else by reducing the production, because, gentlemen, the

The Rubber Association Banquet



TWENTY-FIRST ANNUAL DINNER OF THE RUBBER ASSOCIATION OF AMERICA, INC., AT THE WALDORF-ASTORIA, NEW YORK CITY, JANUARY 10, 1921

world depends upon increasing production and saving waste; and if we don't come to that, there will be rocks upon which the nation is to go. But we are coming to it—a finer spirit in work, and we are getting better results both in the investment of capital and in the employment of labor. I think it is the finest omen of the future that I know of.

I have been somewhat frightened at the tendency of attempting to Sovietize the industries of the country. We cannot afford to look with any particular favor upon such a movement as that, and I think we are passing over the danger point. Not only that we see better conditions in the employment of labor, but we certainly, gentlemen, are going to move out on the sea to stay there as a merchant marine country, for we have got the making of as fine a merchant marine now as any nation outside of the mother country.

THIS IS THE RUBBER AGE

These are some of the evidences of our ability to look into the future. And what may be said of the great industry represented by this group of men? Why, gentlemen, there isn't anything, in my judgment, surer than the perpetuation of the rubber industry which has, in a large degree, come to be so basic that you might call this the Rubber Age, as a few years ago we would speak of it as the Electric Age.

Our industries, our whole industrial life has been colored by new developments along the line of this industry. And if, now and then, we see some evidence of a slacking of business—and I wouldn't be surprised if in the slumps there would not be some severe suffering—yet, what about the 8,000,000 of motors that have determined what largely our thought in business will be? What about the 1,500,000 motors required for replacement every year when we were filled to our fullest capacity and could not reach over 2,000,000? What about the upkeep necessary to run those already manufactured?

Why, the rubber business must go on or civilization could not go as it now is. Nothing is more certain than that. So the outlook is not gloomy. The outlook is wondrously auspicious. We are going to enter upon a constructional era. We are retarded because of the clogging of the current of business.

THE INTERNATIONAL SITUATION

Referring to the international situation, Mr. Fess pointed out that Europe is not yet on her feet and cannot really begin to recover until the Allies fix the indemnity against Germany. Meanwhile neither Germany nor France is at work as will afterward be the case. Germany does not intend to place herself in a position where she might have thrust upon her a greater indemnity. The United States has not established trade relations with Germany because we are not yet at peace. This, he believes, will be quickly and honorably done after March 4, and he anticipates an early fixing of the German indemnity, for the salvation of the world depends on work in both Europe and America.

CONFIDENCE IN THE FUTURE

Summarizing the present duties of government and business, and emphasizing the importance of confidence in the future, he concluded as follows:

So I cannot see, ladies and gentlemen, anything but bright hope for America. And while this period of readjustment is going to produce suffering, I beseech you do not attempt to prevent the liquidation of the war; do not appeal to Congress to keep up the price, because the price was produced by war. I come from an agricultural center, and my farmers want me to vote to fix the price of wheat. Why, that would be foolish and unwise. You in the city would like to have the price come down and the country wants the price to stay up. But the country wants the price to stay up on the article that is sold and come down on the article that is purchased.

It is impossible, gentlemen, for Congress to so legislate that you put the price down on the thing you buy and up on the thing you sell. I am opposed to Congress interfering with prices any more. I think the duty of Congress is to get the Government out of business and let private enterprise have a chance.

Consequently, I come to you with this message: First, let the Government cut as far as it can; secondly, take immediate steps against further extravagance; thirdly, revise the taxation system and do away with that sort of system of tax that penalizes business and is built upon the position that any man who has succeeded must have been dishonest or he would not have succeeded.

And then, after the Government has done that, taken its hands off of business, let the people, of whom you represent a magnificent group, have faith and confidence and look to the future. And the moment that you begin to have confidence in the future and invest your money, labor will be employed, capital will be invested and in my judgment we are going to enter upon one of the greatest eras of business this nation has ever seen.

POSTMASTER-GENERAL BLONDIN'S ADDRESS

Honorable P. E. Blondin, Postmaster General of the Dominion of Canada, who has held various cabinet portfolios and other government offices, reviewed briefly the high light of Canadian development and achievement, especially with respect to industries, water power, railroads, highways, education and government.



HON. P. E. BLONDIN

CANADIAN ACHIEVEMENTS

Referring to the difficulties and success of the Canadian Government, he said:

As for the Canadian federation, it was made as a compromise, or rather as a bona fide attempt to consolidate two races who had learned more to hate than love each other, and let me tell you, gentlemen, that this bona fide attempt has surpassed all possible hopes. The past successes give us confidence in the future. When we

see the results of half a century, notwithstanding obstacles that seemed insurmountable; when we compare our inhabited territory with what it was forty years ago; when we think of the large railway lines covering the whole country from one ocean to the other and the many steamers carrying our products on all the seas; when we realize the prosperity of the nine Canadian provinces, need I tell you, ladies and gentlemen, that we feel in our hearts, the source of energy and perseverance, all the patriotism which produced all these results, and that we feel ourselves only at the starting point of a progressive march toward greater achievements, making us your worthy and your friendly neighbors?

THE FRIENDSHIP BETWEEN CANADA AND THE UNITED STATES

He alluded with particular fervor to the long period of mutual friendship and trust enjoyed by Canada and the United States, which it is hoped may be more firmly cemented as regards commercial relations by the newly organized Rubber Association of Canada, an outgrowth of the work of The Rubber Association of America. That the two nations, each in its sphere of influence, may always continue to set an example of friendship, and work in every way for peace on earth, he expressed as the desire of the Canadian Government and people.

THE RUBBER INDUSTRY A CARRIER OF CIVILIZATION

In recognition of the far-flung humanizing influences of the rubber industry he remarked:

Trade has always been the carrier of civilization; it is on the wings of trade that the Gospel of God and all human truth has reached the four corners of the world—and I am not afraid that I am over-praising you if I add that no industry deserves more credit than yours in that respect.

DOCTOR BOYNTON'S ADDRESS

The Reverend Nehemiah Boynton, of Brooklyn, New York, who aptly styles himself pastor at large, spoke with eloquence, wit and optimism in appreciation of the importance of the finer sensibilities in business and international relations, and pictured brilliantly the wonderful opportunities for helpfulness and progress in the ethical aspect of commercial and world affairs. After alluding amusingly to his association with the rubber industry, he warned against the provincialism in human nature that sometimes induces men immersed in their own affairs to think that the universe is bounded by their particular calling, business or dwelling place.

NEW DEMAND FOR BUSINESS ETHICS

There are two great things, he asserted, which business men ought to have their eyes on at present, the first being that there is a new demand for common, plain, old-fashioned ethics. Men who had slipped many cogs in the machine of ethics while engrossed by the unprecedented opportunity to pile up personal resources, foresaw in 1920 where business and the country were going to if, in the greed of accumulation, the homely principles of downright honesty and fair dealing were to be relegated to the rear, and began to call for a new and square deal in commercial affairs. Continuing, he spoke in part as follows:



REV. NEHEMIAH BOYNTON,
D. D.

Business men began to say to people who had made contracts in good and honest purpose, and then because the market had fallen off tried to break their contracts and ship the goods for which they had contracted, back upon the people with whom they had made their contract; they began to say to those people, "Look here, don't you know that it is perfectly honorable for a man in the fortunes of war to lose his cash, but God help him if in trying to save his cash he loses his character?" And they started a new significance to this attempt to break contracts which had been made honestly and honorably and told each other the fact that if you wanted to take the entire life out of the business of our country, or any other country, you would make the principle of contracts a sort of shuffling thing, so that a man who holds a contract in all honesty and honor, does not know whether it is going to be lived up to by the other man or not.

Oh, the new demand for new ethics in the world, the professional as well as the business world, is one of the hopeful signs for the future of our country and the world in these depressing days, for, as has been said, and we remember the saying, gentlemen, in spite of everything, the Ten Commandments are not abridged, and stealing will continue.

THE IMPORTANCE OF WORLD NEIGHBORLINESS

Now, the other thing which is to be seen in the larger life of the world that we all ought to get our eye on is a new appreciation of the principle of neighborliness in the world. No man is such a consummate jackass in this day and generation as the man who undertakes to make you believe that you can build a high fence around the United States of America, and allow the rest of the world to go hang and let America proceed to glory.

All that happens in one corner of the world is now of immense significance to those who live in the other corners of the world, and it cannot be that in one corner of the world there are 3,500,000 starving boys and girls; that in another corner of the world there are a million starving men and women; that China has two million men and women in the grip of a most grasping famine, the most grasping that country has ever known—it cannot be that these things can transpire in other corners of the world and have no effect upon us in well fed, in rich, in prosperous America.

For the enlarging vision which today can make America with all her magnificent opportunities; with the great immunity which was hers through the war; in spite of her wonderful debt which she paid with her money, but which left us with our national life; it cannot be that America, with all these advantages, can look upon the sorrowing and suffering and hunger of the world and not respond. Oh, thank God, she does respond!

So, my two words are these: We ought to be able to see beyond our own individual interests and understand how mightily necessary it is today to accentuate in America the good old-fashioned principle of ethics which we learned at our mother's knee, that honesty is the best policy, and that only as honesty is at a premium in business life can business be either safe on the one hand or in any helpful way largely improved upon the other; and then the second thing, that the principle of neighborliness binds your life to the life of the man who is farthest away from you on this terrestrial sphere and that what affects him will inevitably affect you.

AS TO THE FUTURE

Somebody says there is a depression around. Well, maybe there is. You cannot have a country without having valleys as well as hills. But did you ever ride out into the country, and did you ever notice that what gave your landscape grace, symmetry and beauty was not that it was a dead level plain, but after you had risen through struggle to the summit of a hill, and perhaps had descended into a valley, another hill waited for you, and conquering that with your machine, when you stood upon its shining pinnacle, the view seemed better than any other view you had ever seen? That is the way with business. There may be depression today, but, oh, buckup, buckup, there is going to be a conquered mountain pretty soon in our American business world. And if we have ethics that are keen enough—and we have, and neighborliness that is generous enough—and we have—we shall not only share the view but divide the profit.

MEMBERS AND GUESTS PRESENT

AT THE PRESIDENT'S TABLE

Blondin, Hon. P. E.	Cox, William C.	Lowman, John S.
Bourn, Hon. A. O.	Davol, Charles J.	Maguire, John W.
Boynton, Rev. N., D.D.	Dunn, Harry T.	McLaughlin, C. W.
Broughton, John S.	Fess, Hon. Simeon D.	Rutherford, W. O.
Brown, A. H.	Firestone, H. S.	Sawyer, Homer E.
Carlisle, C. H.	Hanch, C. C.	Thompson, C. E.
Clark, Merrell E.	Hodgman, George B.	Thornston, A. D.
Colt, Col. Samuel P.	Kelly, William J.	Vincent, Col. J. G.
	Lewis, Seneca G.	

ALPHABETICAL LIST

A	Abberley, Lester S.	Abait, N. W.	Achelis, F. G.	Adams, H. J.	Agar, J. L.	Agnew, R. H.	Aiken, Mr.	Ake, M. E.	Alexander, A. N.	Allen, B. H.	Altchuler, A. A.	Anderson, E. A.	Anderson, J. D.	Anderson, V. T.	Andrews, E. S.	Appleton, F. H., Jr.	Armstrong, H. G.	Armstrong, H. H.	Arnold, W. H.	Asakage, A.	Ashcroft, R. W.	Ayer, Benjamin																					
B	Babbitt, R.	Babcock, F. H.	Babcock, E. S.	Badenhop, Robert	Baird, Collier W.	Baird, Robert B.	Baird, Robert L.	Baird, William T.	Baird, W. T., Jr.	Balch, W. H.	Ballou, R. H.	Ballou, W. S.	Banbury, F. H.	Barber, L.	Barnard, H. H.	Barnes, Charles W.	Barrell, Dr. C. S.	Barry, B. J.	Bartlett, E. R.	Basten, Otto.	Batschelder, Frank	Bates, Charles A.	Bates, G. J.	Bauman, H. A.	Baxter, H. L.	Beal, Herman L.	Beard, E. C.	Beatty, C. F.	Bechtel, Fred V.	Beckberger, W. A.	Bedell, H. H.	Bedford, Bruce	Becker, L. A.	Beecroft, David	Behrand, Victor	Benedict, J. R.	Bennett, W. C.	Benny, E.	Bensinger, R. F.	Bergeron, George	Berrien, W. P.	Bers, A.	Bers, E.
C	Cadwallader, Samuel	Caldwell, J. C.	Caldwell, R. J.	Caney, A. W.	Carberry, John D.	Carlkhuft, S. G.	Carleton, W. S.	Carmahan, G. H.	Case, C. C.	Cast, J. F.	Chace, Fred C.	Chalfin, Joseph	Chalmers, G. C.	Chatillon, M.	Chidester, W. H.	Ching, C. S.	Chipman, R. L.	Clark, C. B.	Clark, C. S.	Clark, Myron H.	Clark, Seth L.	Clarkson, Coker F.	Clemens, James	Clement, Thomas	Clements, Dr. R. L.																		
D	Daggett, H. A.	Dammann, Milton	Dane, F. S.	Daniel, F. W.	Daum, G. W.	Davies, I. R.	Dayton, F. E.	Dean, T. B.	Deearth, E. E.	DeLanie, E. C.	DeLanie, H. S.	De Lisser, R. L.	Denman, Walter R.	Desmond, T. A.	Devine, C. F.	Devine, J. W.	DeVries, D. H.	Dickerson, W. H.	Dickson, John A.	Diesher, C. J.	D'Louhy, Joseph	Doty, H. S.	Doucette, W. M.	Dreiser, W. H.	Dumont, L. W.	Duncan, W. W.	Dunlap, W. B.	Dunsford, S.	Dwyer, T. A.														

E

Earle, R. W.
Earle, W. P., Jr.
Eaton, Hugh C.
Eden, W. A.
Edson, Franklin C.
Elbogen, Paul
Englert, G. F.
Enright, W. F.
Evans, P. P.

F

Faber, Charles H.
Faber, Eberhard
Faber, E. L.
Fairbank, L. G.
Fargo, A. W.
Farrel, Franklin
Feinberg, David
Fellows, J. W.
Fenton, Frank
Fera, Henry
Field, H. E.
Fillingham, M. P.
Finch, E. S.
Firestone, H. S., Jr.
Fisher, R. L.
Fisk, H. G.
Fitch, E. H.
FitzGerald, F. B.
Flint, Dr. H. A.
Foley, Frank
Forney, A. C.
Forsythe, Thomas
Fosse, L. A.
Fulkert, C. L.
Fuller, H. P.
Fuller, R. L.
Fulper, Edward B.
Frank, A. A.
Fraser, E. B.
Frazee, W. C.
French, H. W.
Frey, Henry
Friedman, George
Friis, Mr.
Friswell, A. E.

G

Gardner, L. D.
Gardner, T. M.
Garretson, C. D.
Garthwaite, A. A.
Gaskill, J. W.
Gauss, F. L., E.
Gibbs, E. D.
Gibbs, G. W.
Gill, Harry R.
Gillette, R. B.
Githens, H. A.
Glienzner, G. B.
Glanz, C. W.
Glass, R. E.
Glidden, A. H.
Goebel, R. H.
Gold, William B.
Goldman, Herman
Goodrich, D. M.
Goodwin, L.
Goudie, J. O.
Gould, G. C.
Grady, J. E.
Grafton, E. H.
Grandin, F. C.
Granzon, R.
Gray, D. E.
Greene, Bartlett
Greenough, A. B.
Greer, William E.
Grieb, W. G.
Griffith, R. T.
Grow, George
Grunthal, George C.
Gunlock, William M.
Gunn, J. N.
Gussenhoven, W.

H

Haartz, John C.
Habich, C. S.
Habich, G. F.
Haefflein, H. J.
Haigh, H. J.
Haldane, D. D.
Hall, George E.
Haller, G. B.
Mr. Halsey
Hamblen, C. W.
Hamilton, G. H.
Hamilton, R. S.
Handy, T. L.
Hanft, H.

Hannay, A. B.
Hardy, Roger S.
Harm, Henry
Harris, S. W.
Harrison, Clark W.
Hassenzahl, K.
Hauvette-Michelin, J.
Hauff, H.
Hawkins, D. A.
Hayes, Col. J. H.
Haynes, C. R.
Heminway, M. L.
Henderson, F. R.
Henderson, H. H.
Hendricks, H. A.
Henry, M. H.
Herron, J. W.
Hess, W. I.
Hewins, E. D.
Heyworth, Lawrence O.
Hichborn, George F.
Higgins, William
Hill, F. G.
Hines, W. D.
Hirsch, I. Henry
Hitchock, Carl
Hodeman, G. B., Jr.
Hodgman, S. T.
Hodeman, S. T., Jr.
Holcombe, Harold W.
Holmes, J. C.
Hood, F. C.
Hope, H. M.
Hopkins, M. G.
Hopkinson, Ernest
Hopper, C. C.
Horn, Fred
Hotchkiss, H. Stuart
Houk, H. L.
Howell, C. J.
Hower, H. C.
Hubbard, H. B.
Huber, Edward E.
Hughes, C. A.
Huxley, E. H.

I

Isaacs, L. M.

J

Jackson, E. F.
Jackson, O. H.
Jacobv, E.
Jamieson, William
Jamison, C. S.
Jefferts, Harry R.
Jemison, Alfred
Jenkins, H. W.
Johnson, Charles F. H.
Johnson, F. H.
Johnson, I. T.
Johnston, Frederick A.
Johnstone, J. T.
Jones, C. S.
Jones, E. G.
Jones, Fred H.
Jones, W. O.

K

Kane, F. O.
Kaufman, A. R.
Kaufman, W. B.
Kavanagh, C. J.
Kavenagh, W. E.
Kearns, John
Keim, John R.
Kelly, I. H.
Kelly, Timothy J.
Kent, H. L.
Kent, W. J.
Kerr, J. H. S.
Kershaw, R. R.
Keyes, William
Kimball, T. F.
Kinloch, D. H.
Kirchock, F.
Kirkpatrick, L.
Kitchel, A. F.
Kittle, F. Lester
Kloss, George
Kniffen, F.
Korn, E. A.
Kubie, D. S.
Kueler, H. W.
Kuhne, J. W.

L

Laird, E. W.
Lamont, Sloan, Jr.
Landers, D. H.
Landers, R. A.
Lane, J. H.
LaSchum, E. E.
LaSelle, C. P.
Laurie, Irving

Lawrence, L. F.
Leahy, F. M.
Leavitt, E. W.
Lee, Ivy L.
Leisure, B. R.
Lemon, B. J.
Leonard, R. S.
LePan, Louis N.
Leavitt, E. W.
Lewis, W. T.
Ley, L. H.
L'Hommedieu, P. B.
Lincoln, H. F.
Lindsey, H. A.
Lindsey, T. S.
Litchfield, P. W.
Little, C. E.
Littlejohn, Lomax, Jr.
Love, R. A.
Low, P. H.
Lowell, E. E.
Lowrey, Sam
Ludington, G. A.
Lyon, F. H.

M

MacCheaney, L. E.
MacGregory, H. L.
Mackay, J. M.
MacKusick, H. A.
Macomb, J. H.
Mahoney, P. H.
Manchester, A. A., Jr.
Marean, B. E.
Marks, A. H.
Marsh, H.
Marland, W. H.
Marsh, H.
Marshall, T. C.
Marquette, M. A.
Martin, A. C.
Martin, H. T.
Martin, Louis S.
Marvin, J. S.
Masca, E. A.
Matchett, Thomas
Mathey, F. A.
Matthaci, J. W.
Maurer, Edward
Maurer, E. J.
Mayl, J. E.
Mayo, George H.
McCauley, W. J.
McCay, C. B.
McCullough, G. C.
McDonald, A. D.
McDonald, C. P.
McDonough, A. G.
McGaw, R. B.
McGuire, C. V.
McKay, C. B.
McKenna, Francis R.
McKenna, R. T.
McLean, J. F.
McMahon, Wm. W.
McMurray, L. L.
McWilliam, H. F.
Mead, Fred S., Jr.
Meade, James
Medkiff, David
Metzger, Wm. F.
Meyer, D. L.
Meyer, E. T.
Meyerfeld, Paul
Meyers, A. C.
Meyers, Sidney S.
Meyers, Walter E.
Midgeley, T. W.
Miles, D. E.
Millenthal, M.
Miller, C. E.
Miller, Charles P.
Miller, H. C.
Miller, I. L.
Miller, E. A.
Miller, T. W.
Millhoff, F. C.
Milne, Gordon
Miner, W. H.
Mitchell, G. J.
Mock, D. A.
Moffatt, D.
Mooch, Harry G.
Moore, A. W.
Moore, J. T.
Moore, W. H.
Morgan, E. L.
Morse, C. A.

Morse, W. M.
Mowe, J. V.
Muehlstein, H.
Muehlstein, J.
Murphy, P. A.
Murray, C. E., Jr.
Myers, C. A.

N

Naylor, R. B.
Neal, Frank G.
Neter, N. E.
Newlean, J. W.
Nickel, F. B.
Niles, Charles
Noble, W. M.
Norris, Webster
Norwood, Guy E.

O

O'Donnell, G. F.
O'Donnell, M. J.
Oakley, C. H.
Oldfield, Barney
Oliver, J. William
Oliver, N. E.
O'Neil, George I.
O'Neil, William
O'Neil, T. Y.
Owen, W. B.

P

Page, Hutchison
Palmer, H. G.
Pam, Eric
Pardee, A. L.
Parker, David
Parker, Paul P.
Parker, W. H.
Partridge, Gilbert F.
Patterson, D. A.
Pearson, Morris
Peaty, S. H.
Pell, George E.
Pepper, W. M.
Perks, P. W.
Perlish, Henry T.
Perry, H. G.
Peters, E. V.
Peterson, Mr.
Petze, C. L.
Pfaff, Edward F.
Pfeiffer, W. F.
Pfeiffer, W. I.
Phillips, A. D.
Pierce, Mr.
Pinetree, Mellen H.
Pinto, Peter P.
Place, Charles A.
Place, F. N.
Plumb, L. J.
Phile, Harry V.
Polack, E.
Polly, I.
Potter, Guy
Powers, F. Wade
Pralow, H.
Pratt, B. H.
Price, A. H.
Price, John W.
Price, W. C.
Priest, E. H.
Proctor, L. B.
Pusinelli, Fred

Q

Quine, C. R.
Quinn, P. M.
Quinn, P. N.

R

Robinson, Harry E.
Robinson, J. T.
Rand, L. H.
Rankin, W. H.
Raymond, H. K.
Rector, Dr. J. M.
Reed, I. Ely.
Reeve, Arthur
Reeves, Alfred
Replogle, H. H.
Reynolds, F. I.
Reynolds, W. A.
Reinhold, B. A.
Richards, G. A.
Richards, T. G.
Rieder, T. H.
Roberts, J. S.
Robertson, J. G.
Robins, Thomas
Robinson, Harry E.
Robinson, J. T.
Robinson, S. G.

Robinson, Scott
Roche, Frank
Rockhill, L. C.
Rodenbough, J. S.
Rogers, E. R.
Roper, C. H.
Rosenberg, Joseph
Ross, F. J.
Roth, C. H.
Rothschild, M.
Rousmaniere, J. E.
Rutter, Frank
Ryan, L.

S

Sanford, G.
Sanford, H. R.
Sanger, Mack
Sangster, G. M., Jr.
Sayen, W. Henry
Schaefer, F. C.
Schank, J. C.
Scheel, Henry V. R.
Scheinler, G. LeRoy
Schlosser, George
Schulthess, Ernest
Schuster, M. Lincoln
Schwab, F. M.
Schwartz, S. L.
Schwartz, S. Robert
Scotson, Charles
Scott, H. L.
Seaman, F. A.
Sears, S. H.
Searles, J. E.
Seger, C. B.
Seiblering, C. W.
Seiter, E. A.
Sharts, F. W.
Shellenberger, H. R.
Sherman, George W.
Shils, W. D.
Shugart, G. S.
Shurtleff, E. H.
Sider, Jack
Simmons, J. B.
Simpson, Elliot
Simpson, W. B.
Singmaster, J. A.
Skinker, B. E.
Skinker, Cleveland
Skirm, George W.
Slauson, H. W.
Sloan, Charles
Smail, E. J.
Smith, F. G.
Smith, F. Haskell
Smith, F. W.
Smith, Gordon
Smith, Herbert E.
Smith, Herman E.
Smith, H. J.
Smith, H. O.
Smith, J. A.
Smith, Theodore E.
Smith, Willard P.
Smithyman, D. D.
Sniffin, George W.
Somerville, A. A.
Sorricks, C. H.
Spadone, C. C.
Spier, J. T.
Spitz, L.
Springer, F. V.
Stedman, A. W.
Stedman, C. A.
Stephan, F. T.
Stephens, William
Stephenson, F. K.
Stern, Fred
Stewart, Frederic
Stiles, Lynn D.
Stiles, W. H.
Stimson, H. W.
Stokes, Charles E.
Stokes, Robert J.
Straub, O. E.
Stuart, C. J.
Susskind, Jesse
Susskind, Sidney
Swatts, R. L.
Swain, J. G.
Sweeney, Chas. W.
Sweeney, E. C., Jr.
Sweeney, George R.
Sweeney, J. F.
Swett, J. A.
Switzer, Maurice

T

Taft, George A.
Tait, J. M.
Talbot, J. Alden
Tallman, J. M.
Tarof, E. J.
Taylor, James N.
Teevan, Charles L.
Terhune, R. A.

Thomas, J. W.
Thomas, L. H.
Thomas, V. G.
Thomas, W. G.
Thompson, C. S.
Thompson, Kennedy M.
Thompson, W. A.
Thorpe, Merle
Tiederman, P.
Tilney, A. A.
Tobin, Horace B.
Tompkins, L. D.
Tonner, R. L.
Townsend, G.
Tozier, Edward B.
Troesch, A. A.
Trudeau, P. W.
Tucker, A. Y.
Turner, Harold M.
Turner, Morton A.
Twombly, E. K.

V

Van Alost, J. Milton
Van Cleef, F. C.
Van Etten, J. de C.
Van Kleeck, C. M.
Vance, L.
Venn, Charles J.
Vinton, A. E.
Von Bernuth, F. A.
Von Schlegel, V.

W

Wagner, C. E.
Wagner, Henry C.
Walsh, Thomas F.
Wanek, A.
Wanning, F. D.
Vard, S. R.
Warner, L. C.
Warren, A. W.
Warren, F. A.
Warren, H. D.
Waters, Clark
Watson, J. K.
Waugh, A. E.
Weaver, O. L.
Webber, E. G.
Webster, E. C.
Weidner, Stuart
Weeks, P. S.
Weida, Harry
Weisel, William
Weisendanner, Ulrie
Welch, C. J.
Wellein, H.
Weston, J. C.
Wheeler, George
Wherry, H. P.
White, Albert R.
White, C. M.
White, J. J.
White, W. T.
Whiting, W.
Whitlock, William
Whitman, R. L.
Whittaker, William
Whitlsey, C. B.
Wiegand, W. B.
Williams, Frank L.
Williamson, H. L.
Williams, R. S.
Wilson, Charles A.
Wilson, C. Dudley
Wilson, C. T.
Wilson, E. B.
Wilson, Edgar H.
Wilson, W. H.
Wilson, R. P.
Wilson, Wesley E.
Wiltse, F. S.
Winans, W. R.
Winsor, G. G.
Wood, Charles E.
Wood, LeRoy
Wood, Theodore
Woodard, S. P.
Woodbury, R. B.
Woodward, F. R.
Woodward, Van Lear
Worthington, H. D.
Wray, P. O.
Wright, O. I.

Y

Yamanaka, S.
Yard, D. D. F.
Young, H. N.
Yule, G. G.

Z

Zimmerman, H. J.

Annual Meeting of The Rubber Association of America

THE SIXTH ANNUAL MEETING, (under the present charter) of The Rubber Association of America, Inc., was held at the Waldorf-Astoria on the afternoon of January 10, 1921. President Homer E. Sawyer presided. The session was a short one, such formalities as the reading of the call for the meeting and the reading of the minutes of the previous meeting being dispensed with upon motion from the floor.

GENERAL MANAGER'S REPORT

The president made no report, as the 20-page report of general manager and secretary Viles covered comprehensively the activities of the past year and the hopes and aspirations of the Association for the future. In view of the distribution of this report in printed form, it was not read, and on motion from the floor Part I, devoted to a summary of the past year, was accepted and placed on file. Its contents is familiar to readers of THE INDIA RUBBER WORLD who have followed the monthly account of the activities of the Association.

TREASURER'S REPORT

The report of treasurer Cox, also printed, was likewise accepted and placed on file. The accompanying balance sheet shows the organization to be in a strong financial position with a general fund of \$161,646; bond investments, \$136,961, of which \$42,000 were invested during 1920; cash, \$24,366; unexpired division funds, \$3,313.

BALANCE SHEET—DECEMBER 31, 1920

ASSETS	
Cash in bank and on hand.....	\$24,366.24
Investments.....	\$136,961.25
Less depreciation.....	9,691.25
Furniture and fixtures.....	\$10,968.73
Less depreciation.....	7,643.84
Guaranty Trust Co. (London Branch).....	3,924.89
Baling presses.....	7,047.99
Accounts receivable.....	24.00
Accrued interest on investments.....	970.86
Annual banquet (1921) expense.....	1,363.19
Annual banquet (1921) expense.....	141.44
Total assets.....	\$165,108.61
LIABILITIES	
Arbitration committee.....	\$100.00
Associate dues paid in advance.....	5.00
Annual banquet (1921) receipts.....	8.00
New York State income tax, withheld.....	35.42
Unexpended division funds.....	3,313.91
General fund.....	\$161,646.28
Total liabilities.....	\$165,108.61

ELECTION OF NEW DIRECTORS

The Nominating Committee placed before the Association the names of ten firm members from whom to elect five directors. A perforated printed ballot was used so that any five names might readily be detached. The balloting resulted in the election of Harry T. Dunn, president of The Fisk Rubber Co. (re-elected); F. A. Seiberling, president of The Goodyear Tire & Rubber Co. (reelected); Horace De Lisser, chairman of the board of directors, Ajax Rubber Co., Inc.; W. O'Neil, vice-president of the General Tire & Rubber Co.; F. R. Henderson, of F. R. Henderson & Co.

AMENDMENT TO THE CONSTITUTION AND BY-LAWS

The proposed amendment to Article XI, Section 2, of the constitution and by-laws, formally authorizing as part of the annual dues of manufacturing firm members an annual pro rata fee based upon the amount of crude rubber purchased by each of such members, was unanimously adopted. This perpetuates in principle the informal agreement made during the war and since effective on the part of all manufacturing members to contribute to the

Association three cents per hundred pounds for such rubber as they purchase. As the annual dues are obviously insufficient to carry on much desirable association work, this action was necessary.

The amended section reads as follows:

Annual Dues. The annual dues for affiliated members shall be twenty-five dollars (\$25) per annum and for associate members five dollars (\$5) per annum, payable in advance on January 1 in each year. The annual dues for firm members shall include a basic fee of fifty dollars (\$50) per annum, payable in advance on January 1 in each year and for all manufacturing firm members an additional pro rata annual fee based upon the amount of crude rubber purchased by each of such members. The rate upon which such pro rata fee shall be based for each year or any portion thereof and the time and method of payment of such fee shall be determined by the Association at its annual meeting or at any special meeting duly called for that purpose. Members elected after January 1 in each year shall pay a proportion of the annual dues for the balance of that year beginning with the first of the month following election. Members who fail to pay their entrance fees, annual dues or other indebtedness within thirty days after the same become due, shall be notified by the treasurer, and if payment is not made within the next succeeding thirty days, shall be reported to the Executive Committee as in arrears, and may, at the discretion of the Executive Committee, be dropped from the membership rolls.

On motion of J. Newton Gunn it was voted that for the year 1921 the rate upon which the pro rata fee shall be based shall be three cents per hundred pounds of crude rubber purchased and that the time and method of payment of this fee shall be in accordance with the practice heretofore employed.

PROPOSED EXTENSION OF ASSOCIATION ACTIVITIES

In taking up Part II of general manager Viles' able report, devoted to plans for gradually enlarging the activities of the Association, president Sawyer explained that the recommendations were in large measure the valuable suggestions of the sub-committees of the Association. While the recommendations had received the favorable consideration of the Board of Directors, it was felt that, as they entailed increased expense, the full membership should have a voice in the matter, and he invited remarks, comment and criticism from the floor.

On motion of W. O. Rutherford, seconded by J. Newton Gunn, Part II of the general manager's report was unanimously referred to the incoming board with power to act.

On motion of F. A. Seaman, seconded by R. Wolf, a unanimous vote of thanks was extended to all the officers and directors and to the general manager and his associates in the office for the very good work done by each of them during the past year. Following this, there being no further business, the meeting adjourned.

ELECTION OF OFFICERS

Immediately following the general meeting, the Board of Directors met in another room of the Waldorf-Astoria and the officers of the Association for the year 1921 were elected as follows: president, Harry T. Dunn; first vice-president, F. A. Seiberling; second vice-president, Horace De Lisser; each to serve for a term of one year.

The Executive Committee for the year is comprised of the following:

Harry T. Dunn, chairman;	F. R. Henderson,
J. S. Broughton,	F. A. Seiberling,
Horace De Lisser,	Homer E. Sawyer (ex-officio).

Officials and Directors of Rubber Association of America, 1921



FRANK A. SEIBERLING
First Vice-President



HARRY T. DUNN
President



(C) Underwood & Underwood, N. Y.
HORACE DE LISSER
Second Vice-President



J. S. LOWMAN



WILLIAM C. COX
Treasurer



J. MORGAN



A. L. VILES
General Manager and Secretary



S. G. LEWIS



J. N. GUNN



A. D. THORNTON



J. A. MAGUIRE



J. S. BROUGHTON



W. O. RUTHERFORD

Portraits of A. H. Brown, F. R. Henderson and W. O'Neill, directors, not available

THE 1921 ASSOCIATION PROGRAM

IN PART II, of his report General Manager Viles asserts that with the Board of Directors he believes the time has come for equipping the Association with the facilities and organization necessary to serve its members more effectively along the more comprehensive lines employed by other trade organizations representing important industries and competently serving as the medium for cooperative effort in all matters of interest.

The Board of Directors has favorably considered numerous suggestions by firm members and the various divisions of the Association, and through the general manager recommends to the membership that the Board of Directors be authorized to proceed with the desired extension of the organization and its activities. This embraces: (1) an export or foreign trade department; (2) educational publicity for the industry in general; (3) a cost accounting department; (4) an industrial relations department; (5) research and statistical work; (6) standardization and specification work.

The proposals for broadening the scope of the Association are not an idealistic program for which no real demand has become evident, but represent the natural development of interest in the activities of the various divisions of the Association during the past year, and are presented as the needed equipment for carrying on work which has, to a greater or lesser extent, already been started. The recommendations do not contemplate any research work in connection with the technical, chemical or mechanical phases of rubber goods production, as that would duplicate the activities which manufacturers are better qualified and equipped to handle, but rather an increase of the Association organization to handle more efficiently the routine work which it is already being called upon to perform.

Careful consideration of the project was asked of the membership because the entire program would involve an additional expense which, when added to the annual expenditure of the Association as at present operating, would very closely approximate the annual income from all sources which may reasonably be anticipated for the next two or three years, provided the present basis of contributions to the Association is continued. However, the Board of Directors believes that it is so fundamentally sound in all its phases and will represent so satisfactory an investment that it should be proceeded with immediately. In this connection it is pertinent to state that the Association, even with the enlarged organization suggested, would represent an investment by the industry which is considerably less than that of other trade organizations representing other major industries.

DIVISIONS' AND COMMITTEE MEETINGS

MEETINGS of committees and divisions of the Association were held at the Yale Club, the Union League Club, and the Association rooms in New York City, and officers elected for the ensuing year.

INDUSTRIAL RELATIONS.—A meeting of the Executive Committee was held at the Yale Club, January 10. General labor conditions and other matters of a routine nature were discussed.

HARD RUBBER MANUFACTURERS' DIVISION.—The annual meeting was held at the Yale Club, January 10, at which trade conditions in general were discussed. Harry Weida, The India Rubber Co., was elected chairman for the ensuing year.

RUBBER FOOTWEAR DIVISION.—The annual meeting was held at the Union League Club, January 10. George H. Mayo, United States Rubber Co. and Francis S. Dane, Hood Rubber Co., were reelected chairman and vice-chairman, respectively, for 1921. A very interesting discussion was had in connection with present conditions in the rubber footwear industry.

CYCLE TIRE MANUFACTURERS' COMMITTEE.—This committee, a newly organized one, met at the Yale Club, January 11. The meeting was primarily of an organization nature although several other matters of interest to motorcycle and bicycle tire manufacturers were brought before the members.

MECHANICAL RUBBER GOODS MANUFACTURERS' DIVISION.—A very interesting meeting was held at the Yale Club January 11. C. E. Cook, The B. F. Goodrich Co., was elected chairman for the ensuing year, and C. D. Garretson, The Electric Hose & Rubber Co., elected vice-chairman.

RUBBER SUNDRIES MANUFACTURERS' DIVISION.—A meeting of the Executive Committee was held at the Yale Club January 11, which was followed by a meeting of the division. Charles J. Davol, Davol Rubber Co., who has been chairman for the past year, was succeeded by H. A. Bauman, The B. F. Goodrich Co., who, as vice-chairman, is succeeded by A. W. Warren, Hodgman Rubber Co.

RUBBER RECLAIMERS' DIVISION.—A meeting of this division was held at the Yale Club January 11, with a good attendance. F. H. Appleton, Appleton Rubber Co., and Clark W. Harrison, Bloomington Rubber Co., were reelected chairman and vice-chairman, respectively, for 1921. A general discussion was indulged in by those present in regard to the general business conditions in the reclaiming industry.

SPECIFICATION COMMITTEE, MECHANICAL RUBBER GOODS MANUFACTURERS' DIVISION.—A meeting of this committee was held January 11 in the association rooms. Matters of a detail nature of interest were considered, following which the Committee held a conference with the Executive Committee of the Mechanical Goods Division, the subject of which was the future work and activities of the Specification Committee.

RUBBER PROOFERS' DIVISION.—A meeting was held at the Yale Club January 12. General trade conditions in the rubberizing industry, as well as the subject of the cancellation of contracts in the auto-top manufacturing industry were the main topics of discussion. N. Lincoln Greene, United States Rubber Co., clothing division, was elected chairman, and A. W. Warren, Hodgman Rubber Co., was elected vice-chairman.

FOREIGN TRADE DIVISION.—A meeting which proved particularly interesting because of the contemplated organization of a foreign trade department of The Rubber Association was held at the Yale Club January 12. C. A. Wilson, Dural Rubber Corporation, was elected chairman, and R. H. Daniels, The Goodyear Tire & Rubber Co., was elected vice-chairman.

TIRE MANUFACTURERS' DIVISION.—The annual meeting was held at the Yale Club January 13, which was immediately preceded by a meeting of the Executive Committee of that body in the association offices. The following officers were elected: Seneca G. Lewis, Pennsylvania Rubber Co., chairman; Joseph C. Weston, Ajax Rubber Co., Inc., vice-chairman. Executive Committee: Pennsylvania Rubber Co., Ajax Rubber Co., Inc., Kelly-Springfield Tire Co., Hood Rubber Co., The Fisk Rubber Co., The Miller Rubber Co., The Portage Rubber Co., Lee Tire & Rubber Co., Swinehart Tire & Rubber Co., Firestone Tire & Rubber Co., Empire Tire & Rubber Co., United States Tire Co., The B. F. Goodrich Co., The Goodyear Tire & Rubber Co., The Star Rubber Co., The Mohawk Rubber Co., and New Jersey Car Spring & Rubber Co., Inc.

TRAFFIC COMMITTEE.—The annual meeting was held in the Yale Club January 10, at which a docket containing a large number of subjects was discussed. For the year 1921 H. J. Zimmerman, The B. F. Goodrich Co., and A. D. Phillips, The Fisk Rubber Co., were elected chairman and vice-chairman of the committee, respectively, who, with the following members, will constitute the Executive Traffic Committee of the Association; George F. Hichborn, United States Rubber Co.; John A. Moore, Ajax Rubber Co., Inc., E. C. Webster, Hood Rubber Co.; E. L. Morgan, The Miller Rubber Co., and L. H. Ley, Kelly-Springfield Tire Co.

The Traffic Committee appeared before the Consolidated Classification Committee on January 11, respecting ratings and packing specifications covering several rubber articles, principal among which was the question of more elastic specifications for paper wrapping on tires.

STANDING COMMITTEES

THE PERSONNEL of the Standing Committees of the Association for the year 1921 was decided upon as follows:

COMMITTEE ON NOMINATIONS

B. G. Work, The B. F. Goodrich Co., 1780 Broadway, New York.
H. S. Firestone, Firestone Tire & Rubber Co., Akron, Ohio.
G. B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York.
F. C. Hood, Hood Rubber Co., Watertown, Massachusetts.
H. E. Sawyer, United States Rubber Co., 1790 Broadway, New York.

LEGISLATIVE COMMITTEE

Charles Neave, chairman, counsel of The Rubber Association of America, Inc., 5 Nassau street, New York.
F. C. Van Cleef, The B. F. Goodrich Co., Akron, Ohio.
Ernest Hopkinson, United States Rubber Co., 1790 Broadway, New York.

AUDITING COMMITTEE

E. M. Bogardus, The Fisk Rubber Co., 52 Vanderbilt avenue, New York.
W. O. Cutter, United States Rubber Co., 1790 Broadway, New York.

BANQUET COMMITTEE

A. W. Warren, chairman, Hodgman Rubber Co., Tuckahoe, New York.
G. A. Ludington, The Fisk Rubber Co., 52 Vanderbilt avenue, New York.
H. C. Miller, The B. F. Goodrich Co., Akron, Ohio.

OUTING COMMITTEE

J. V. Mowe, chairman, Kelly-Springfield Tire Co., 1710 Broadway, New York.
W. J. Kelly, Poel & Kelly, 347 Madison avenue, New York.
H. G. Palmer, The Goodyear Tire & Rubber Co., Akron, Ohio.

ARBITRATION COMMITTEE

Term January, 1921—January, 1924

A. A. Garthwaite, Lee Tire & Rubber Co., Conshohocken, Pennsylvania.
G. A. Ludington, The Fisk Rubber Co., 52 Vanderbilt avenue, New York.

With respect to the Traffic Committee and the Industrial Relations Executive Committee, the board was of the opinion that as the personnel is composed of men familiar with the work, a greater measure of efficiency can be obtained by their reappointment, and it was formally decided to handle the matter accordingly. The personnel of these committees is as follows:

TRAFFIC COMMITTEE

J. A. Moore, chairman, Ajax Rubber Co., Inc., 220 West 57th street, New York.
H. J. Zimmerman, vice-chairman, The B. Goodrich Co., Akron, Ohio.
George F. Hichborn, United States Rubber Co., 1790 Broadway, New York.
R. G. Kreidler, The Goodyear Tire & Rubber Co., Akron, Ohio.
A. D. Phillips, The Fisk Rubber Co., Chicopee Falls, Massachusetts.
E. C. Webster, Hood Rubber Co., Watertown, Massachusetts.
E. C. Knox, Firestone Tire & Rubber Co., Akron, Ohio.
E. L. Tragesser, The B. F. Goodrich Co., Akron, Ohio.
E. J. Tarof, The Brunswick-Balke-Collender Co., 29 West 32nd street, New York.
C. K. Smaltz, The Mansfield Tire & Rubber Co., Mansfield, Ohio.
W. L. Hulbert, Boston Woven Hose & Rubber Co., Cambridge, Massachusetts.
L. H. Ley, Kelly-Springfield Tire Co., Akron, Ohio.
E. L. Morgan, The Miller Rubber Co., Akron, Ohio.
George A. Pierce, Electric Hose & Rubber Co., Wilmington, Delaware.

F. B. Fitzgerald, New York Belting & Packing Co., 91 Chambers street, New York.

W. D. Norris, The Republic Rubber Co., Youngstown, Ohio.
T. R. Stoughton, Pennsylvania Rubber Co., Jeannette, Pennsylvania.

J. C. Wells, The Philadelphia Rubber Works Co., Akron, Ohio.
I. C. Raub, The Portage Rubber Co., Barberton, Ohio.

A. A. Lindsay, Lee Tire & Rubber Co., Conshohocken, Pennsylvania.

L. S. Rogers, New Jersey Car Spring & Rubber Co., Jersey City, New Jersey.

O. E. Straub, H. Muehlstein & Co., 2401 Third avenue, New York.

J. E. New, The McGraw Tire & Rubber Co., East Palestine, Ohio.

A. L. Viles, general manager and secretary, 52 Vanderbilt avenue, New York.

INDUSTRIAL RELATIONS EXECUTIVE COMMITTEE

C. S. Ching, chairman, United States Rubber Co., 1790 Broadway, New York.

H. L. Baxter, vice-chairman, Hood Rubber Co., Watertown, Massachusetts.

H. O. Smith, Ajax Rubber Co., Inc., 220 West 57th street, New York.

D. E. Beynon, Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario, Canada.

C. H. Oakley, Essex Rubber Co., Inc., Trenton, New Jersey.

W. R. Murphy, Firestone Tire & Rubber Co., Akron, Ohio.

H. T. Martin, The Fisk Rubber Co., Chicopee Falls, Massachusetts.

C. J. Jahant, The General Tire & Rubber Co., Akron, Ohio.

D. R. Stevens, The Goodyear Tire & Rubber Co., Akron, Ohio.

M. A. Flynn, The B. F. Goodrich Co., Akron, Ohio.

A. L. Viles, general manager and secretary, 52 Vanderbilt avenue, New York.

MECHANICAL GOODS SPECIFICATION COMMITTEE

The Board concluded to approve the appointment tentatively made by the Executive Committee of the Mechanical Rubber Goods Manufacturers' Division of the personnel of the Mechanical Goods Specification Committee, to be constituted of the same companies as during the past year, namely:

N. S. Noble, chairman, The B. F. Goodrich Co., Akron, Ohio.

J. W. Fellows, vice-chairman, Boston Woven Hose & Rubber Co., Boston, Massachusetts.

K. B. Kilborn, The Goodyear Tire & Rubber Co., Akron, Ohio.

J. M. Cranz, Hewitt Rubber Co., Buffalo, New York.

C. Bockius, The Manhattan Rubber Manufacturing Co., Passaic, New Jersey.

W. H. Cobb, New York Belting & Packing Co., 91 Chambers street, New York.

S. R. Clark, The Republic Rubber Corp., Youngstown, Ohio.

J. S. Broughton, United & Globe Rubber Co., Trenton, New Jersey.

A. L. Viles, general manager and secretary, 52 Vanderbilt avenue, New York.

It was also decided to request the general manager to convey to the Executive Committee of the Mechanical Goods Division the view of the Board that that committee should hereafter assume the authority for the appointment of the Mechanical Goods Specification Committee.

GENERAL TAX COMMITTEE

F. C. Van Cleef, chairman, The B. F. Goodrich Co., Akron, Ohio.

E. S. Kochersperger, Hood Rubber Co., Watertown, Massachusetts.

Kennedy M. Thompson, United States Rubber Co., 1790 Broadway, New York.

SPECIAL JOINT EXCISE TAX COMMITTEE

It had been suggested that the General Tax Committee might very properly take care of all tax matters connected with association work, including the excise tax situation, particularly for the reason that it is desirable to have a small committee well versed in this specific phase of the tax subject and available for frequent conferences with the management of the Association. The Board approved the suggestion and requested the general manager to notify the General Tax Committee that the scope of its activities was enlarged to include excise tax matters which had been given attention by the former Excise Tax Committee.

COMMITTEE ON CRUDE RUBBER

Superseding "Special Committee on Uniform Crude Rubber Contract and Nomenclature" and Committee on Rubber and Kindred Products

The advisability of appointing the personnel of these committees was considered particularly in the light of the possibility of an affiliation of The Rubber Association of America, Inc., with the Rubber Trade Association, whose membership consists of rubber brokers, dealers and importers. Representatives of the crude rubber interests on the Board participated with particular interest in this discussion, which resulted in the conclusion that the matters formerly handled by the two committees referred to might very well be given attention by a small committee of five members, three representing crude rubber interests and two representing manufacturing interests. The suggestion was made that the name of the committee be simply "Committee on Crude Rubber," which was considered to be comprehensive, and it was so voted by the Board. The appointment of the personnel of the committee was left to the president of The Rubber Association of America, with power to act.

AMERICAN TRACTORS ON RUBBER PLANTATIONS

MATERIALIZING in a sense the hope of mankind that the sword will be beaten into a plowshare, the American tractor, which served as one of the powerful engines of war, has developed into one of the foremost instruments of peace. The sturdy caterpillar tractor which the Allies found so useful in military operations is now being employed on a rapidly increasing scale in the production of the necessities of civilization. Particularly is this true with regard to the cultivation of rubber on the vast estates in Malaya, Sumatra, Borneo, and other places in the Far East, where much of the land is so encumbered with dead stumps and roots and tough underbrush that plowing with oxen is practically impossible and clearing can be done efficiently only with the most powerful tractors. Even the most conservative estate managers, who have long looked askance at labor-saving equipment, are being won over by demonstrations of modern agricultural machinery and have placed



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TRACTOR PLOWING RUBBER LAND

many orders with the recently-established American tractor agencies in Penang, Singapore and other adjacent cities.

In a tractor trial a short time ago in Sumatra one of these machines easily plowed up twenty acres of jungle-free land in about five hours, a job which, it is said, would have required 100 coolies. The saving in labor cost and insuring rice and other provisions for the workers was self-evident. Weeding by

tractors is gradually supplanting the old method of rooting out rank growth by means of plows and oxen, inasmuch as the cost of oxen and labor is steadily increasing. Yet the tractor is not intended to compete with either coolies or oxen, but to aid in



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TRACTOR PULLING STUMPS ON RUBBER PLANTATION

their work. A large 75-h.p. American tractor has been rendering surprisingly good service in pulling tree stumps and clearing jungles in Sumatra, as well as in doing general plowing under most unfavorable conditions. Experiments are planned in breaking up the soil between rubber trees with tractors in trained hands in a way that may not damage the roots close to the surface.

During the past year nearly 1,000 American tractors have been sold in the Philippines, where the need of more abundant and effective power for various kinds of agricultural work is constantly growing more urgent. The tractor made its advent into the islands just when the shortage of draft animals began to cause grave anxiety, for, despite all the efforts to lessen disease among the *carabao* (water buffalo), these valuable cattle have been dying off rapidly. Nor have large importations of these animals from Indo-China and elsewhere offset the drain.

The labor situation is also troubling employing agriculturalists. The natives bitterly resent the bringing in of coolies from Java, the mainland, and other places, fearing lower wages or loss of work; and many employers are hoping for a solution of the problem in the tractor, which will probably suffice, with the native workers, for all agricultural needs. Another trouble which the planters have long found a difficult one to overcome was keeping down the growth of cogon grass, the grass used largely for thatching, and which grows higher than a man's head, and chokes up crops worse than weeds.

Students of rubber conditions in Brazil believe that tractors could be used in the Amazon country with decided success. Rubber trees are abundant, and will long remain so, but labor is scarce and getting dearer. While the tractor may not be needed at present for rubber cultivation, it would undoubtedly facilitate plantation work if the latter be started; and it should be useful for food cultivation, making jungle paths for latex gatherers, for hauling the raw gum to depots, and transporting supplies.

Rubber growers and cotton raisers will watch with interest the result of trials of agricultural tractors and self-contained plows of all kinds, many of them prominent American types, now being made in Egypt. The first demonstration will be plowing medium land for cotton in the southern delta, and the second of the plowing of heavy land in the northern delta. The country is said to offer unusual opportunities for the sale of American agricultural machinery.

A Glossary of Words and Terms Used in the Rubber Industry—II¹

By Henry C. Pearson

IN RESPONSE to inquiries, the tentative plan of this glossary is to submit it in sections, as for example, general terms relating to crude rubber which appeared in the January issue. This installment to be all available terms relating to American crude rubber. Next, African and Asiatic crude rubber. Following these, manufacturing terms in general use in all lines of rubber manufacture, and, lastly, terms relating to specific rubber manufacturing lines. In the event that the work is of proven value, the various sections to be consolidated alphabetically in book form, making a fairly complete working dictionary of rubber terms.

NORTH, CENTRAL AND SOUTH AMERICAN WILD RUBBER

ACID-CURED RUBBER. The product from the coagulation of latex by acids. The terms applies generally to plantation Hevea where acetic acid is the coagulant, but here to the use of that acid in coagulating the latex of Ceará rubber.

AIR-DRIED RUBBER. See Coarse Pará, Ceará and Centrals.

ALUM COAGULATED RUBBER. Latex coagulated by the addition of alum. See Mangabeira, Ceará and Matto Grosso.

ANGOSTURA RUBBER. Hevea rubber which comes down the Orinoco river in Venezuela from Ciudad Bolívar, and is of the same grades as Amazonian Pará. See Fine Pará.

ACRE CAUCHO. See Cauchó.

ACRE PARÁ. Hevea rubber from the Federal territory of the Acre in Brazil. See Upriver Pará.

AMAZON RUBBER. A general term for any Pará rubber gathered on the banks of the Amazon or its affluents.

AMAZONAS RUBBER. See Manáos Rubber.

AMOLE RUBBER. Castilloa rubber produced by the use of an infusion made from the amole vine with the latex. See Centrals.

BENI-BOLIVIAN. See Bolivian.

BOLIVIAN PARÁ. Hevea rubber which comes down the Beni and other rivers in Bolivia to the Madeira and thence to the Amazon. It has a cleaner fiber and is tougher than most upriver. See Upriver Pará.

BOLIVIAN CAUCHO. See Cauchó.

BOLIVIAN WEAK FINE. See Weak Fine.

CAMETÁ PARÁ. Hevea rubber from the port of that name on the Tocantins River. It is air coagulated and comes in cup-shaped pieces, massed into large blocks or balls, called in the English market, Cametá negroheads. See Coarse Pará.

CAUCHO. Rubber derived from the *Castilloa ulci*, not the product of the *Castilloa elastica* (Centrals), obtained originally from Peru, but later from most of the rubber-producing areas of Bolivia and Brazil. It is classified generally as upper river and lower river. It comes to the market as ball, strip and slab. The slab is the result of coagulation through the addition of astringent plant juices or of soap. The strip is rubber that has self-coagulated or air-dried in the tapping cuts. Ball is the agglutinated product of air-dried scrap and strips. The product varies considerably in cleanness, the shrinkage being from 18 to 45 per cent. The ports of shipment are Iquitos, Manáos and Pará.

CAVIANA FINE. Smoke-coagulated Hevea, the highest grade of islands, having a smooth, close grain, the name being taken from the island at the mouth of the Amazon which produces it. Small flattened pellets are known as Caviana knapsack. See Fine Pará.

COARSE PARÁ. (Sernamby, Negroheads). Air-dried, self-coagulated rubber from the Hevea, collected from utensils used in gathering, in cuts in the trees and scraps. These are pressed together in roughly shaped balls, 3 to 10 inches in diameter. In packing, these balls stick together and form rough masses like

the receptacle in which they are shipped. The balls when cut open are of a dirty yellowish white shot through with black lines. They often contain dirt, and foreign matter. The shrinkage is 18 to 45 per cent.

CASTILLOA (CASTILLA) RUBBER. A term used chiefly for the product of the *Castilloa elastica*. See Centrals.

CEARÁ NEGROHEAD. See Ceará.

CENTRALS (Central American). Rubber from the *Castilloa elastica* and allied species and from certain *Sapiums* from Central and South American states north of the Amazon and including Mexico. The rubber has neither the elasticity nor toughness of fine or coarse Pará. It is marketed as sheet or slab, strip, ball and sausage. Sheet or slab is coagulated often in holes in the ground, the coagulant being the juice of the amole vine, soap or any common astringent. Strip is latex that dries in the tapping cuts. Scrap, balls and sausages are small masses of strip and other air-coagulated rubber stuck together for convenience in shipping. The principal ports of shipment are Port Limón and Greytown, Costa Rica; Bluefields and Corinto, Nicaragua; Belize, Honduras; Salvador, St. José, Guatemala.

COSTA RICA RUBBER. See Centrals.

COLOMBIAN RUBBER. Castilloa rubber that comes to the market in dark colored, air coagulated strips, graded as No. 1 and No. 2. A small amount of thin rough tarry sheet comprises the lowest grade called Cartegena sheets. See Centrals.

CARTEGENA RUBBER. See Colombian Rubber.

COLUMBIAN VIRGIN RUBBER. See Virgin Rubber.

CORINTO RUBBER. Castilloa rubber shipped from the Pacific port of Nicaragua of that name. See Centrals.

CHRYSL RUBBER. The product of a North American shrub, the *Chrysothamnus nauseosus*. Still in process of investigation.

CEARÁ RUBBER (MANICORA-MANIHOT). A rubber produced in the southern Brazilian states of Ceará, Piauí, Pernambuco, Bahia and Minas Geraes. It is the product of the *Manihot Glaziovii*, *M. Dichotoma* and the *M. Piauhiensis*. There are three forms of coagulation: air-drying, in which the latex coagulates in tears on the surface of the trees; alum coagulation, and acid coagulation. The rubber ordinarily comes to the market in the form of Ceará scrap, which is the air-dried product, roughly agglutinated to the shape of the shipping containers; Ceará negroheads, which is air-dried scrap pressed into balls, and Ceará sheet coagulated either by the addition of alum or acetic acid. The above grades as a rule contain much foreign matter and the shrinkage is large. The alum or acid-coagulated Ceará is sometimes rolled by machinery into thin sheets, forming what is known as Ceará crêpe. The air-dried scrap is also washed and marketed as washed Ceará scrap. The above-mentioned grades are all products of the *M. Glaziovii*. A higher grade is the product of the *M. Dichotoma* (Remanso rubber). This comes as Jequié sheet and Jequié crêpe, acid-coagulated; Jequié scrap and Jequié washed scrap, air-coagulated. What is known as Piauí rubber is the product of the *Piauhiensis* or *Heptaphylla*, which is classed as Ceará. The principal points of shipment are Bahia, Pernambuco, Ceará and Paranhayba. The rubber shows a shrinkage of 25 to 55 per cent.

CURE. An ordinary term for smoking or coagulating.

CRÊPE. Thin crenulated sheets of rubber prepared by passing freshly coagulated latex or air-dried scrap through compression rolls. See Ceará and Mangabeira.

ENTREFINA. The Brazilian and English term for medium fine Pará. See Medium Fine Pará.

ESMERALDA RUBBER. Castilloa rubber from Ecuador. The usual grades are strip and sausage. See Centrals.

¹Continued from THE INDIA RUBBER WORLD, January 1, 1921, pages 235-6.

FINE PARÁ (*Hevea Brasiliensis*). The highest grade and for years the unit of value in crude rubber. It is smoke-cured in biscuits (pelles) ranging in size from 4 to 40 pounds. The biscuits vary in color from dark brown to black. Cut open, they show dark brown toward the outside, changing to amber and finally to white at the center. Each biscuit is made up of a multiplicity of thin films as complete layers, each film separately smoked and coagulated. The factory shrinkage is from 10 to 18 per cent. The grades of fine Pará, besides their general terms, are further divided and given names of rivers on the banks of which they are gathered. Thus: Upriver Pará not only is known as Bolivian, Peruvian, Acre, Matto Grosso, Amazonas, but a further subdivision comes in such river names as Madeira, Purus, Juruá and Javary and Beni, lesser affluents of the Amazon.

GUAYAQUIL STRIP. Castilloa rubber from Colombia and Ecuador. Classed as good and ordinary. Usually in slab form. Often very wet. See Centrals.

GUATEMALA RUBBER. Castilloa rubber usually of poor grade. Is air-cured in thin sheets, pressed together green into slabs, often black and tarry. See Centrals.

GREYTOWN RUBBER. See Centrals.

GUAYULE RUBBER. Rubber produced from a desert shrub indigenous to Northern Mexico, the *Parthenium argentatum*. The rubber occurs in the shrub not as latex, but as rubber, and is extracted from the woody bark either by mechanical or chemical means. The product is soft, rather resinous, but usually quite clean. The shrinkage is 15 to 40 per cent. It is marketed under the private brands of the extracting companies.

HANCORNIA RUBBER. See Mangabeira.

HEVEA RUBBER. See Pará.

HARD CURE. The best quality of upriver fine, the biscuits being drier than those of the lower river. See Fine Pará.

HONDURAS RUBBER. See Centrals.

ISLANDS COARSE. Hevea scrap from the lower Amazon. See Coarse Pará.

ISLANDS MEDIUM. Large second grade biscuits of Hevea from the delta of the Amazon. See Medium Fine Pará.

ISLANDS FINE (SOFT CURE). Hevea rubber collected on the lower Amazon, especially on the islands of the delta. See Fine Pará.

ITAITUBA PARÁ. Hevea rubber from the head of steam navigation on the Tapajos River, Brazil. The fine and medium are apt to be poor and the coarse dirty. See Fine, Medium and Coarse.

IQUITOS RUBBER. Hevea shipped from the Peruvian port of that name. See Fine Pará.

JAVARY CAUCHO. Upper river Castilloa rubber from the river of that name. See Caucho.

JAVARY PARÁ. Hevea upriver Pará. See Fine Pará.

JURUÁ CAUCHO. Upper river caucho rubber from the river of that name. See Caucho.

JURUÁ PARÁ. Upriver Hevea rubber from the river of that name. See Fine Pará.

JUQUE RUBBER. Manihot rubber from the southern states of Brazil. See Ceará.

KNAPSACK PARÁ. Especially good grade of upriver Hevea from the Madeira River, so called from the shape of the pelles. See Fine Pará.

KNAPSACK CAVIANA. Small flattened Hevea pelles. See Caviana.

LOWER RIVER. Caucho from the Amazon below Santerem and the affluents, Tapajos, Xingu, and the Tocantins. See Caucho.

MADEIRA PARÁ. Upriver Hevea, named for the great tributary of the Amazon. Is of excellent quality and has a fine close grain. See Fine Pará.

MANAOS PARÁ. Upriver Hevea rubber exported from the capital of Amazonas. See Fine Pará.

MATTO GROSSO PARÁ. Hevea rubber from the state of that name. See Fine Pará.

MATTO GROSSO CAUCHO. Caucho from the Brazilian province of that name. See Caucho.

MATTO GROSSO VIRGIN. Alum-cured Hevea rubber, prepared in blocks 6 inches thick and 12 inches in length and width. The surface is brown in color, the inside greenish yellow. The shrinkage is 12 to 25 per cent.

MANGABEIRA RUBBER. The product of the *Hancornia speciosa* indigenous to Southern Brazil. It is alum-cured, flabby and wet and comes in sheets of a tawny color resembling liver. The shrinkage is from 40 to 60 per cent. The sheets are sometimes machine washed and marketed as Mangabeira crêpe. The rubber is exported from Bahia and Pernambuco.

MEDIUM FINE PARÁ (ENTREFINA). Second grade Hevea rubber in biscuits similar to fine Pará. The inside of the biscuit, however, is composed wholly or in part of small lumps or scraps of air-dried, or partly coagulated rubber or badly smoked rubber over which films have been deposited by smoking. On cutting it shows an uneven mixture of brown, black or dirty white lines. The shrinkage is 12 to 25 per cent. See Fine Pará.

MIDDLE RIVER PARÁ. Hevea rubber from the rivers Tapajos, Tocantins and Xingu. The grades are upper Tapajos, lower Tapajos, Upper Xingu and Lower Xingu Fine, and Tocantins. See Pará, Fine, Medium and Coarse Pará.

MOLLENDÓ PARÁ. Hevea rubber shipped from the Peruvian port of that name, but collected in southern Bolivia, prepared principally in biscuits. See Fine Pará.

MEXICAN RUBBER. Castilloa rubber shipped from the Mexican ports of Vera Cruz and Puerto Mexico. See Centrals.

MEXICAN GUAYULE RUBBER. See Guayule.

MANICOBÁ RUBBER. See Ceará.

MANIHOT RUBBER. See Ceará.

NEGROHEADS. See Coarse Pará and Ceará.

NEW CROP. Rubber but recently gathered or about to be received from the gatherers.

NICARAGUA RUBBER. Castilloa rubber from the republic of that name and to a degree from neighboring republics. It is drier than most Centrals. The best grade is Greytown scrap. The principal ports of export are Bluefields and Greytown. See Centrals.

OLD CROP. The product of a former season's gathering.

ORINOCO PARÁ. See Angostura Pará.

OLD FINE. See Old Crop.

PARÁ RUBBER (WILD). A general term for rubber from wild trees of the genus *Hevea*, indigenous to South America. Called Pará because it was first shipped commercially from the Brazilian port of that name. Most of this rubber comes from the states of Pará, Amazonas, Matto Grosso and Acre in Brazil and from the forest areas in Bolivia and Peru east of the Andes. It is also found in a lesser degree in Colombia, Venezuela and the Guianas. The most important is the *Hevea brasiliensis*, although of the twenty or more species, several also furnish Pará rubber either alone or in admixture. Pará rubber is first divided into three grades of origin: islands, middle river and upriver. These in turn are subdivided into three grades of quality: fine, medium and coarse. See Fine, Medium, Coarse.

PARÁ WEAK FINE. See Weak Fine.

PERUVIAN PARÁ. Upriver Hevea rubber from Peru. See Fine Pará. Also a term erroneously applied in the English trade to the rubber described under the heading, Caucho.

PERUVIAN CAUCHO. Upper river caucho. See Caucho.

PERUVIAN TAILS. See Caucho.

PERUVIAN WEAK FINE. See Weak Fine.

PANAMA RUBBER. Castilloa rubber shipped from either of the Panama Canal ports. See Centrals.

PURUS PARÁ. Hevea rubber from the river Purus. One of the choicest upriver grades. See Fine Pará.

PURUS WEAK FINE. See Weak Fine.

PIAUHY RUBBER. See Ceará.

PERNAMBUCO RUBBER. See Mangabeira.

RUBBER CROP. Rubber gathered in the dry season; that is, from June to October. From November to May floods render most rubber areas impassable.

REMANSO RUBBER. A local name for Jeque rubber. See Ceará.

RIO NEGRO WEAK FINE. See Weak Fine.

SAPIUM RUBBER. The product of the *Sapium jemani* formerly plentiful in the Guianas, graded as Centrals. See Centrals.

SIPHONIA RUBBER. An obsolete term for Pará rubber.

SERNAMBY. See Coarse Pará.

SMOKED PARÁ. Rubber coagulated in thin superimposed films by exposure to smoke, usually of palm nuts. See Fine Pará.

SOFT CURE. A term applied to smoked Hevea from the Lower Amazon containing more moisture than hard cured rubber.

SANTOS RUBBER. Hancornia rubber from the Brazilian port of that name. See Mangabeira.

SCRAPPY NEGROHEADS. A second grade of coarse Pará. See Coarse Pará.

TEARS. Small nodules of air-coagulated rubber. See Ceará.

TUNO RUBBER. A trade name for the product of the *Castilloa tinu*. Marketed in yellowish white, brittle balls, three to five inches in diameter. It contains over 80 per cent resin and nearly 10 per cent of gutta-like hydrocarbons. Rare.

TUXPAM RUBBER. Castilloa rubber from the Mexican port of that name. See Centrals.

UPRIVER PARÁ. Hevea rubber from the Upper Amazon, the ports of shipping being Iquitos, Manáos and Pará. It comes in biscuits averaging 30 pounds in weight. It is divided into upriver fine Pará, or hard cure; upriver medium and upriver coarse Pará. It comes specifically from the Brazilian states of Amazonas, Matto Grosso and Acre; also from Bolivia and Peru. The grades are in general Amazonas fine and coarse; further subdivided as to river locality, as Madeira, Javary, Purus, Jurua, etc. Bolivian fine and coarse and Peruvian fine and coarse. See Fine Pará.

UPPER RIVER. A term used in connection with caucho from Upper Amazon. See Caucho.

VIRGIN SHEETS PARÁ. See Matto Grosso.

VIRGIN GUM. An early term for Central or South American rubber other than Pará. Obsolete.

VIRGIN RUBBER. The product of a tree indigenous to Colombia, the *Sapium tolimense*. It comes as sheet and is graded with Centrals. See Centrals.

WEAK FINE. Hevea rubber collected from Heveas other than the *H. Brasiliensis* as the *H. Guianensis*, is classed as weak, although coagulated in the same manner. It is softer, more resinous and lacks nerve. It is graded as Pará weak fine, Purus weak fine, Bolivian weak fine, Peruvian weak fine (Mollendo Peruvian debil), Rio Negro weak fine.

WHITE PARÁ RUBBER. See Matto Grosso.

XINGU RUBBER. Hevea rubber from the Lower Amazon affluent of that name. See Fine Pará.

THE AMERICAN CUSTOM OF USING ABBREVIATIONS WHEREVER possible may result in real monetary loss to the user, instead of saving time. A case in point is the use of abbreviations in consular invoices of goods shipped to Brazil, as a result of which receivers of American goods at Brazilian ports are frequently subjected to fines. The Brazilian invoice form requires consignors of merchandise to write out in full the name of the country of origin of the goods and the country where the goods are purchased in each of the columns provided for that purpose. When it is considered that custom house officials discharging the goods receive 50 per cent of the fine levied, the need for meticulous care to conform to every regulation becomes at once apparent.

SPECIFICATIONS FOR STARTING AND LIGHTING STORAGE BATTERIES FOR MILITARY AUTO-MOBILE AND TRUCK SERVICE

THE Bureau of Standards has issued the final revision of the following specifications for military and truck service, prepared by the Bureau with the cooperation of manufacturers and the Electrical Equipment Subdivision on Storage Batteries.

TYPE OF BATTERY

The battery shall be of the lead-acid type, using flat pasted plates and shall be constructed to withstand hard mechanical service conditions.

CAPACITY AND ARRANGEMENT

Number of Cells	MEDIUM AND HEAVY TRUCKS						Assembly
	Minimum Capacity, Amp.-Hr.		Maximum Overall Dimensions				
	5-hr. Rate	20-min. Rate	Length, ¹ In.	Width, In.	Height, In.		
3	60	31	10½	7½	9½	Side to side	
3	72	37	11½	7½	9½	Side to side	
3	80	35	14½	7½	9½	Side to side	
6	48	25	17½	7½	9½	Side to side	
6	50	24	19½	7½	9½	Side to side	

¹No allowance made for hold-down clamps.

PASSENGER CARS AND LIGHT TRUCKS

PASSENGER CARS AND LIGHT TRUCKS								
Number of Cells	Minimum Capacity, Amp.-Hr.		Maximum Overall Dimensions				Assembly	
	5-hr. Rate	20-min. Rate	Length, ¹ In.	Width, In.	Height, In.			
3	60	31	9½	7½	9½	Side to side		
3	72	37	11½	7½	9½	Side to side		
3	84	43	12½	7½	9½	Side to side		
3	96	50	13½	7½	9½	Side to side		
3	95	43	15½	7½	9½	Side to side		
3	84	43	20½	4½	9½	End to end		
3	95	43	20½	5½	9½	End to end		
3 ²	50	45	18½	5½	11½	End to end		
6	36	19	13½	7½	9½	Side to side		
6	48	25	15½	7½	9½	Side to side		
6 ²	60	31	17½	7½	9½	Side to side		
6 ²	48	25	20½	5½	9½	End to end		

²Not to be continued as a standard size beyond present requirements.

CONSTRUCTION

Connecting straps shall be of lead or lead-antimony alloy. Plates of like polarity in each cell shall be integrally burned to the respective straps. Straps are to be of pillar-post type of sufficient size and strength to be an adequate conductor and support for the group of plates.

Inter-cell connectors are to be of the "burned-on" type. The voltage drop in the intercell connectors is not to exceed 10 millivolts per inch of distance between post centers, when discharging at the 20-minute rate. Copper straps, when used, are to be lead coated and provided with terminals of lead or lead-antimony alloy, which are burned to the posts. Intercell connectors must not obstruct the filling apertures.

Plates shall be of good design and the best quality of materials and workmanship. This is to be judged either by laboratory tests or by a record of satisfactory field service at the option of the purchaser.

Separators shall be (a) of properly treated wood corrugated on the side next to the positive plate; or (b) of properly treated wood as specified in (a) plus a perforated or slotted separator of thin flexible hard rubber, placed between the positive plate and the ribbed side of the wood; or (c) of an approved rubber type. The separators are to be held in place by suitable hold-downs.

Terminal posts shall be plainly marked with the polarity as follows:

The positive terminal shall be marked POS or P
The negative terminal shall be marked NEG or N

The terminal posts are to be in accordance with the S. A. E. Standard for taper posts as follows:

	Inches
Small diameter, negative post.....	¾
Small diameter, positive post.....	1
Taper per foot.....	1/16
Minimum length of taper.....	1½

Sealing nuts or other suitable means are to be used to prevent leakage around the terminal posts of the individual cells. If metallic sealing nuts are used, it is required that they be of lead-antimony alloy throughout.

Jars are to be of hard rubber and to conform in dimensions, design and quality to the Standardization of Hard Rubber Storage Battery Jars for Starting and Lighting Batteries² prepared for the Hard Rubber Division of the War Service Committee of the Rubber Industry adopted August 27 and August 28, 1918.

Covers are to be of a good quality of hard rubber. They are to be flat-top and bottom, or molded with flat top, free from acid pockets, with single sealing flange. The cover of each cell is to be provided with a filling aperture closed by a vent-plug of hard rubber. The vent-plug may be of the bayonet or screw type. Each vent-plug is to be provided with an outlet for the gas and a baffle-plate or equivalent means to prevent slopping of the electrolyte, or the escape of spray. Covers for cells of the batteries specified as for medium and heavy truck service may be of the double-flange type. They are to conform otherwise to the requirements of this section.

Sealing compound shall be of an acid-proof material that will adhere firmly to both rubber and wood surfaces, and of such consistency that it will not flow at 55 degrees C. (131 degrees F.) and will not crack, or separate from the rubber at a temperature of 20 degrees C. (-4 degrees F.) under static test. The sealing compound must not be easily ignited.

Trays shall be of close-grained seasoned hardwood, such as oak, maple, birch, etc., free from knots, checks or other imperfections, up to the standard known as No. 1. Ends are preferably to be of one piece each, but may be of not more than two pieces, provided the joint is reinforced. The trays are to be lock-cornered and pinned top and bottom. Trays are to be painted inside and outside with at least two coats of acid-proof paint. The trays for batteries specified for medium and heavy truck service shall be provided with spacers and tie-bolts, or other construction to provide additional strength.

Handles are to be of good quality steel or other malleable metal securely attached to ends of tray. Handles are to project above the intercell connectors to protect the connectors from the top of the battery box, but the overall height is not to exceed that previously specified. Handles are to be coated with lead and then heavily coated with acid-proof paint.

Electrolyte is to be a solution of sulphuric acid in pure water of density not exceeding 1.310 at 25 degrees C. (77 degrees F.) when the battery is fully charged. When specified by the War Department for use in hot climates the density of acid at 25 degrees C. (77 degrees F.) shall not exceed 1.225 under the same conditions.

TESTS OF THE BATTERIES

Measurements of the ampere-hour capacity of the batteries are to be made at the following rates of discharge, or more, and the results are to be expressed as the capacity of 25 degrees C. (77 degrees F.). Tests are to be made with the normal density of acid not to exceed 1.310 at 25 degrees C. (77 degrees F.). The rates and the end-voltages required are as follows:

Rate of Discharge	End-Voltage Per Cell
5-hr.	1.70
20-min.	1.50

The battery shall be completely charged and allowed to stand idle four weeks. The decrease in capacity at the end of this period when discharged at the 5-hour rate shall not exceed 30 per cent of the capacity as determined in the preceding paragraph.

For 1 hour the battery is to be subjected to a vibration consisting of a simple harmonic motion having a frequency of 1,000 vibrations per minute through a vertical displacement of 5 mm. (0.2-inch). The battery is to be discharged at approximately

the 5-hour rate. It must maintain a steady voltage and current. The cell terminals must not become loose in the covers nor the electrolyte flood the top of the battery. At the conclusion of this test the cells will be examined for broken connectors, straps and plates and for excessive sediment.

Samples of electrolyte are to be drawn with a clean pipette from the cells when fully charged. The maximum allowable impurities in the electrolyte taken from the cells are as follows:

Color	none
Suspended matter	trace
Platinum	none
Antimony and arsenic	trace
Manganese, per cent.	0.005
Iron, per cent.	0.012
Copper, per cent.	0.005
Oxides of nitrogen	trace
Chlorides calculated as chlorine, per cent.	0.012
Organic matter	trace

STATE OF BATTERIES AT TIME OF DELIVERY AS REQUIRED

Batteries intended for immediate use or for wet storage where suitable facilities are available are to contain electrolyte and be fully formed and charged.

Batteries in the bone dry condition are to have rubber separators only or an approved equivalent. The plates are to be fully formed.

When delivered in a moist condition the wood separators are to be thoroughly wet with water. The plates and separators are to be free from acid in appreciable quantities. The vents of the individual cells are to be sealed in an approved manner. The plates are to be fully formed.

When delivered dismantled for dry storage the plates are to be fully formed and dry. Wood separators are to be kept moist with slightly acidulated water in a suitable non-metallic container with cover. The individual parts are to be complete and to conform to the various sections of these specifications.

FIRST ANNUAL HIGHWAY TRANSPORTATION SHOW, 1921

The Motor Truck Association of America, Inc., held its first annual highway transportation show from January 3 to 8, in New York City, at the armories of the Twelfth Regiment and of the First Field Artillery.

Apart from the display of trucks for every purpose, civil and military, and of indispensable accessories, special interest was given to the show throughout the week by the plan of setting apart each day of the show for the emphasis of certain important aspects of motor transportation. These designations were: Opening Day; Army Day; Motor Accident Prevention Day; Transportation Day; Farmers' Day, and Motor Truck Association Day. On each special day were featured by appropriate addresses, practical demonstrations and educational motion pictures.

Special exhibits were presented through the courtesy of the United States Army, American Legion, Bureau of Economics, Red Cross and Police Department of New York.

Two exhibits among the accessories shown had rubber interest. These were the Tru-Matic Tire & Tube Co.'s molded endless red rubber tube and the Martin Cushion Wheel.

The Wellman-Seaver-Morgan Co. exhibited a four-cylinder truck motor, 4¼ by 6 inches, 40-60-h.p. at 1000-1500 r.p.m. and displayed an inverted motor and one with cylinders removed for better exhibition of their construction.

A RUBBER-TIRED BOOK WAGON

A variation of the well-known tea wagon is the book wagon, adapted for use in libraries or for the home. It is a beautiful and well-made piece of furniture, of solid mahogany with book-trough at top and two extra shelves underneath for books, magazines, etc. The book-wagon stands 29½ inches high and runs easily on rubber-tired wheels, silently and without marring the finest floors or crushing the softest rugs.—Mark Cross, 404 Fifth avenue, New York City.

²See THE INDIA RUBBER WORLD, October 1, 1920, page 50.

Artificial Lighting in the Rubber Industry—II¹

The Fundamental Principles of Illumination (Physical)

By E. Leavenworth Elliott

WHOSE BUSINESS IS IT TO PRESCRIBE THE LIGHTING?

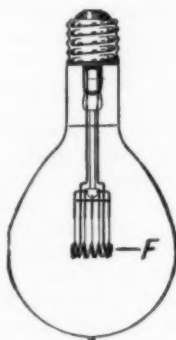
BEFORE proceeding to discuss the scientific laws and theories pertaining to the use of light for purposes of illumination, it will be well to consider the subject briefly from the personal standpoint. To put the question in its plainest terms: Whose particular business is it to study the lighting problem, and prescribe the kind of illumination to be used?

The present lack of unanimity on this point is as remarkable as it is general. "What is everybody's business is nobody's business," is the nearest answer under existing conditions. The lighting in most factories is a mere makeshift; it is either an incongruous growth from an antiquated installation, or an arrangement laid out on empirical rules without regard to the special conditions under which it is to be used. Which of these two types is in use will generally depend upon the age of the buildings.

New buildings are usually turned over to the owners with the lighting equipment installed. Such equipment may be called the blue-print systems of illumination. They consist ordinarily of a certain conventional type of lighting unit distributed in geometrical order over the ceiling, no consideration being given to location

in the lighting problem in its broader aspects, which far exceed the mechanical and electrical boundaries of his professional duties. In such case he will probably pick up considerable practical knowledge from the more observing operatives, and so be able to give really helpful advice on the subject. But such help as he may be able to give is wholly gratuitous; the knowledge and duties of the electrical engineer do not give him any *ex officio* control over the methods of lighting. He has discharged his full duty when he supplies and maintains such lighting units as are demanded, in the locations designated.

Much less often, the purchasing agent assumes the authority of selecting the kind of lighting apparatus to be used—a modern instance of following Hamlet's instruction to "assume a virtue if you have it not." The absurdity of the case only shows the limits to which neglect of this vital facility may extend. The purchasing agent, in his own proper element, asks only the one universal question, "How much?" To buy lighting equipment on a sole basis of first cost is exactly on a par with hiring responsible executives on a basis of salary only—which is enough said on this point.



HIGH CANDLE-POWER FILAMENT LAMP.
LUMINOUS SOURCE, HEAVY LINES F,
A CIRCLE ONE-INCH DIAMETER



COOPER-HEWITT MERCURY LAMP, LUMINOUS SOURCE. VAPOR IN GLASS TUBE, ONE-INCH DIAMETER, FIFTY INCHES LONG. INSERT, FILAMENT-LAMP USING SAME CURRENT AND REDUCED TO SAME SCALE

of machinery, benches, or operative's position. "Blue-print lighting" is the result of the problem being handled by the architect or construction engineer. And again I disclaim any intention of reflecting upon the ability of either of these practitioners in their own proper spheres; the only criticism in this case being that they have assumed jurisdiction over a matter with which they have no logical connection. Having assumed jurisdiction, responsibility for results follows, and the results are very generally bad.

Again, the light being produced from electricity, the whole matter is often turned over to the electrical engineer, whose business it is to install and maintain the electrical equipment. This may produce results having varying degrees of good and evil. If it is simply a matter of initial equipment it will result in a "blue-print lighting" system. If it involves maintenance, it may result in a system chosen wholly with regard to cost and trouble of upkeep, which is fundamentally wrong from the standpoint of rational economics, as I have already shown. On the other hand, the electrical engineer, especially if he is the regular works engineer and not acting in a consulting capacity, may become interested

Sometimes the chief executive is the dictator of the lighting equipment. This may occur in "one man" institutions by reason of financial control; or it may result from the type of personality that insists on being "the whole procession and the dog under the wagon." In any case the lighting will suffer, either from lack of sufficient personal study of the problem, or from time-worn prejudices, or both. The exceptions will be those small, self-contained concerns whose entire activities are within the intimate supervision of a single individual.

LIGHTING NOT AN ENGINEERING PROPOSITION

"I see what you are driving at. You want all the lighting turned over to illuminating engineers."

My dear sir, never did you guess wider of the mark. After nearly a quarter of a century of work and observation in this field, I am now convinced that industrial lighting is not, properly speaking, an engineering proposition. The net results of all efforts to this end have been to encumber the subject with a mass of mathematical formulas and mechanical details, by the manipulation of which, it is assumed; the proper prescription for the lighting in any given case may be derived.

Neither experience, nor a comprehensive study of the underlying

¹Continued from THE INDIA RUBBER WORLD, January 1, 1921, pages 239-241.

principles, justifies this assumption. The ultimate results of an engineer's work exist in material structures—in railways, bridges, machines, power plants, mine shafts, etc.; the ultimate result of a lighting installation exists in the minds of those using the light; its success is measured by the efficiency with which the visual organs, of which the brain is an essential part, perform their functions. In plain words and few, the final question asked of any method of lighting is: How well can you *see* by it? The basis of any rational science of lighting is therefore to be found in psychology, rather than in physics and mathematics, which are the fundamentals of all branches of engineering. So we shall have to seek still further for the proper source of authority on the practical use of light.

The end and aim of industrial lighting is perfectly definite and sharply defined; it is, to enable the workman to see to do his work. Without light he can do nothing. With the best of light he can do all that his muscular strength and skill are capable of performing. Between these limits there are all degrees of efficiency. The output of the workman thus depends directly upon his ability to see; or, as the scientist would put it, the output of any given operative is a function of his visual impressions. The answer to our question should now be clear: the person by whatever title designated, who is responsible for the output of any assembly of workmen, should prescribe the kind of light and method of its use for each and every operation.

LIGHTING BELONGS TO PRODUCTION MANAGEMENT

Lighting is a part of production management. This definite assignment of the subject to its proper place in industrial organization would of itself be a decided step toward reducing it to a practical science, and rescuing it from its present position in no-man's land, where it is kept busy dodging the knocks aimed at it from all quarters.

Having thus placed the responsibility for the lighting in the department where it rightfully belongs, the duty rests with the general management to assign a particular individual to take personal charge of the matter. Makeshift lighting, which characterizes 90 per cent of the industrial installations, and which reduces output anywhere up to 40 per cent, is a direct result of the failure to place the responsibility and authority in some one person, directly concerned with production. All of the technical data necessary to handle the problem in a practical, scientific manner can be easily mastered by anyone having a common school education.

I shall attempt to give this data in plain English, stripped of all unnecessary scientific verbiage, and omitting all that does not have a direct practical bearing on the subject. The reader who takes the trouble to become familiar with what is given can investigate his own special problems in a scientific manner, and pass intelligent judgment on all schemes proposed by sales engineers who are inclined to embellish their arguments with high-sounding technical terms, and particularly if they find their prospect is unable to contradict them.

ANALYSIS AND CLASSIFICATION OF THE SUBJECT

The first step in the scientific treatment of any subject is analysis, taking it apart to discover the elements, or fundamental principles of which it is composed. Now, as to industrial lighting: there is light; there are the mechanical contrivances for producing light, classed under the general title of lamps, which are often equipped with globes and reflectors for modifying the light; there are the objects on which the light falls and which it illuminates; there is the eye which receives light from the objects; and the brain, which gives the sensation of seeing.

The next step is classification. In this case the elements involved fall into two classes: the production of light and its conversion into illumination, and the action of the visual organ in producing the mental sensation of seeing.

Two different sciences will, therefore, be called upon to furnish the facts and theories, the judicious application of which

will enable us to secure the most satisfactory results. These two sciences are physics, dealing with light, and psychology, dealing with vision. Lighting, as a science, is thus a branch of psychophysics.

But let not the practical, intelligent production manager, superintendent, foreman, or workman take fright at these high-sounding names. All that he needs to know of these sciences to enable him to handle his lighting problems understandingly is quite within his comprehension, as I hope to show.

NATURE OF LIGHT

Light is a form of energy which acts through space by means of wave motions. It is of the same nature as the energy used in wireless telegraphy, the only difference being in the size of the waves. The general properties of waves may be observed from those on water. Thus, if you drop a pebble into a pond of still water, you will see a series of waves spread out in the form of concentric circles, each circle enlarging uniformly until it reaches the shores of the pond. Any given point in a wave moves out from the center along a radius of the circle. If you bring your hands together sharply you set up a wave motion in the air, which you recognize as a sound; but in this case the waves spread out in the form of constantly expanding spheres, and so proceed in all directions in space, any given point in a wave traveling along a radius of the sphere. If you heat a piece of iron sufficiently hot it sends out in a similar manner a series of waves which spread in all radial directions, and which, if they enter the eye, produce the sensation which we call light. These waves are motions in a substance—or more accurately a medium, for it is quite different from what we know as substance, which is supposed to fill all space, and scientifically is called *ether*. It is in this ether that the wireless electrical waves move. Ether-waves are commonly called *radiations*.

Referring again to the water waves: the motion of the wave over the surface must be clearly distinguished from the motion of the water, which simply rises and falls with a definite rhythm. Recall now the waves on a large body of water; measuring from crest to crest they exhibit very great differences, from the huge dead-swell to the tiny ripple. This distance from crest to crest is called the *wave length*. Also, the waves show equally great differences in their height, or distance from the bottom of a trough to the top of a crest. This is called *amplitude* of the wave; the greater the amplitude the greater the amount of energy in the wave; on water high waves result from strong winds. You will recall further that waves of all sizes run over the water at the same time.

THE TWO MEANINGS OF LIGHT

We can now proceed with consideration of those waves, or radiations, which are called light because they produce the sensation of light on entering the eye. Note carefully now that the word light has two very different meanings, the one being an *effect upon the mind*, and the other the *form of energy* (radiations) which causes this mental sensation. These are, respectively, the psychological and the physical meanings of the term. Waves may differ in length and in amplitude. In light-waves variations in amplitude produce differences in intensity, or flux density, in the radiations, and differences of brightness in visual sensation. Differences in wave-length produce the variations of sensation which we call colors. The colors have a natural order, thus: beginning with the longest waves, the color is deep red; as the waves become shorter the color changes to brighter red, then to yellow, green and blue, the blue becoming fainter until it begins to show a mixture of dull red forming a violet, and finally becomes a faint crimson which soon fades entirely out. This succession of colors is called the *visible spectrum* and corresponds to the scale in music. The light of the sun and of all artificial lights with one exception contain all of the colors at once, but in somewhat different proportions. Pure sunlight is called white light. Any variation from the proportion of colors found in this standard

produces a colored light. *All artificial lights are more or less colored.*

THE TWO DIFFERENT KINDS OF LIGHT

By the use of glass prisms, or other devices, it is possible to separate the colors contained in any given kind of light, i.e., to produce the spectrum of that light. The rainbow is a natural spectrum of sunlight, and is called the "solar spectrum." The noticeable thing about this band of colors is that each color blends by the most perfect gradations into adjacent colors; the spectrum is *continuous*, there are no gaps, nor abrupt changes. This is true of all light produced from glowing solids or liquids. If, however, a vapor be heated to the point of incandescence or luminosity, and a spectrum formed of its light, it will be found that this spectrum is not continuous, but consists of certain lines of color separated by gaps or bands of darkness. This is called a *line spectrum*; and each kind of vapor has its own particular arrangement of color lines. One of the forms of electric lamps produces its light from glowing vapor (of mercury) and its light therefore differs from all other kinds of light in common use in that it has a line spectrum.

MEASUREMENT OF LIGHT

Light in the sense of energy can be measured. The most familiar measurement is the one expressed in *candle-power*. To speak of a 10-candle-power light is like speaking of a 40-horse-power motor. In each case the power developed from one source is compared to the power generated by another source taken as a unit; both are relics of the crude beginnings of scientific measurement. Candles and horses are themselves extremely variable in their powers, while the sole virtue of a unit is its constancy. However, very definite values have been evolved for these units so that their names are now only metaphorical. It is important to keep in mind that candle power does not signify quantity of light; it refers only to the intensity of the radiation in one direction, the horizontal.

The instrument for measuring candle-power is called a photometer. It consists of an arrangement by which two surfaces, one illuminated by a standard light (theoretically a candle, but actually an electric lamp), and the other by the light to be measured, can be seen side by side, and the brightness of one or the other varied until the two surfaces appear equally bright. The means generally used to vary the brightness is by changing the relative distances of the two lights from the observed surfaces, which are called the screen.

One of the fundamental laws of light is what is called "the law of inverse squares," and states that "the intensity of light varies inversely as the square of the distance from the source." Thus, if the intensity of light in a given direction at 1 foot from a lamp is 1 c.-p. (candle-power), at 2 feet from the lamp it will be $\frac{1}{4}$ -c.p., at 3 feet, $\frac{1}{9}$ -c.p., etc. So, if the light to be measured has to be removed 4 times as far from the photometer screen as the standard lamp to bring the surfaces to the same brightness, then the light is 16 times as intense as the standard.

MEASUREMENT OF ILLUMINATION

A surface is illuminated when light falls upon it, and the *intensity of illumination varies inversely as the square of the distance of the surface from the light source*. To express the degree of intensity of illumination, therefore, a unit of distance must be used in connection with a unit of light. The units commonly used are the foot and candle, thus forming the *foot-candle* which is the intensity of illumination of a surface placed one foot from a light of one candle-power.

An instrument for measuring illumination is properly called an illuminometer. Such instruments operate on the same principle as photometers. A very small and compact instrument of this kind has been put on the market under the name of "Foot-candle-meter," which is not as accurate as the larger instruments, but is quite satisfactory for measurements of actual illumination as distinguished from laboratory conditions.

Measurements of intensity, whether of light or illumination, are not measurements of quantities, but of degrees of difference, and are similar to the measurements of intensities of heat as degrees of temperature. In order to form a unit quantity in either case it is necessary to introduce an additional unit. Thus, the unit quantity of heat, the calorie, is the amount of heat necessary to raise the temperature of a cubic centimeter of water one degree C., the definite quantity of water being the additional unit. In forming the unit quantity of light, a unit of surface (1 square foot) is taken, and when illuminated with an intensity of one foot-candle, it receives a definite quantity of light, which is called the *lumen*. Intensity in foot-candles multiplied by the number of square feet gives the total quantity of light in lumens falling on a given surface.

NATURE OF REFLECTION

There is one more measurement of light which is useful in the study of illumination, but before considering it we would better examine briefly the subject of reflection. When light falls on a surface, more or less of it is turned back, or reflected. What is not reflected is absorbed, i.e., changed from light into heat. Reflection is never complete; that is, a surface never reflects as much light as it receives. (There is one exception, but it applies only to certain optical apparatus.) This fact should be carefully noted. The fakes that have been based upon the assumption that light can be increased by reflection are many and varied, and date back for more than a century. If light could be increased by reflection, perpetual motion would be possible. The proportion of light which a surface reflects, expressed in per cent, is called the coefficient of reflection of that surface.

Besides differing in quantity, reflection also differs in quality, according to the character of the surface from which it is reflected. Thus, if the surface is perfectly smooth, like still water, or plate glass, or burnished silver, the reflection gives us images of objects, or, as we commonly say, we can "see things by its reflection." This is called *regular*, or *specular reflection*. If the surface is rough, the reflected light is scattered in all directions, which prevents its forming images, and gives only an effect of brightness to the surface. This is called *irregular*, or *diffuse reflection*. Most surfaces reflect the different colors of light with different degrees of completeness, or what is the same thing, absorb the different colors in different amounts, that is, they have "selective absorption." A surface which reflects only red light is called a red surface, and so for the other colors. Polished, or shiny surfaces are those which give a predominant amount of specular reflection; dull, or mat surfaces are those which give a predominant amount of diffuse reflection. All surfaces give some of each kind. Mat surfaces which reflect all the colors equally are white.

SURFACE BRIGHTNESS

We are now prepared to consider the other measurement of light, which is called surface brightness, and is the intensity of light reflected or emitted from a surface. The unit used for measuring this is called the *lambert*, and is the brightness of a surface, one square foot of which emits or reflects a light of 2 c.-p. intensity. The mille-lambert is .001 of this unit.

The (physical) efficiency of a lighting system is the ratio of the amount of light received on "the working plane," an imaginary surface parallel to and 30 inches above the floor, to the total amount of light generated. This is generally expressed as a ratio of watts per lumen. This "efficiency" is much talked of by illuminating "engineers," but is of trifling practical value, for reasons that will appear later.

So much for the physical measurements of light. While the lighting manager should be familiar with all the terms used, and the general principles upon which they depend, he will have comparatively little use for them in practice. Let us now give our attention to the mechanical side of the question, that is, to the lamps which generate the light, and the reflectors and other devices by which the light is distributed and diffused.

THE DIFFERENT KINDS OF ELECTRIC LAMPS

All electric lamps may be divided into two classes: those which produce light from an incandescent glowing solid, and those which produce light from an incandescent vapor. To the first class belong all forms of arc lamps, and electric "bulbs," or filament lamps. Of the latter the two different forms of tungsten filament lamps are the only types that need be considered today. To the second class belong the two types of mercury vapor lamps, the one in a long glass tube, commonly known, from the name of its inventor, as the Cooper-Hewitt lamp, and the other, a short tube of pure quartz, known generally as the quartz lamp.

These two classes of lamps are radically different mechanically, but the important difference—the most important fact in the whole subject of industrial lighting—is that the light from the filament lamps has a continuous spectrum (contains all the colors of the rainbow) while the light from the Cooper-Hewitt (mercury vapor) lamp has a line spectrum (contains only a few colors). The importance of this difference will be made clear after we have studied the structure and action of the visual organs. But let this be kept constantly in mind: the thing we see by is light, and there are two kinds of light now available. Differences in lamps are only incidental, and of very little consequence.

When we come to the subject of globes and reflectors, we are confronted by the mountain which, after prodigious labor, brought forth a mouse. Their number is legion, and the opportunities which they afford for mathematical juggling are endless. The literature of the subject is filled to overflowing with "papers" and discussions on this exhaustless topic. What it all amounts to in industrial lighting can be better shown later on, when we come to the consideration of actual problems; it will then appear that the matter is largely what Professor James called an "elaboration of the obvious."

SUMMARY

The applied science of illumination does not belong among the branches of engineering.

Industrial lighting should be in charge of the production manager, who should either personally superintend it, or place it in the hands of a responsible subordinate.

The scientific principles of illumination are divided into two classes; physical, those which deal with the production, distribution and measurement of light; psychophysical, those which deal with the construction and operation of the visual organs.

Light has two physical qualities, intensity, or brightness, and color.

Sunlight is made up of all the colors of the rainbow, which form the solar spectrum. All glowing solids give a light having a similar spectrum which is a continuous band of colors. Glowing gases give a line spectrum, i.e., a spectrum consisting of lines of color separated by lines or bands of darkness.

The spectrum of a light can be produced by passing it through glass prisms, which separate the colors.

Intensity is measurable. The unit is the candle-power, which is the intensity of light given out by a standard candle (now actually a standardized electric lamp) in a horizontal direction.

Intensity of light varies inversely as the square of the distance from the source.

Illumination is the result of light falling on a surface. It has the quality of intensity, which varies inversely as the square of the distance of the surface from the light source, and is measured in foot-candles.

The foot-candle is the intensity of illumination on a surface one foot from a standard candle.

Light falling upon a surface is partly reflected and partly absorbed. The percentage of reflected light is the coefficient of reflection of the surface.

Reflection is of two kinds, specular, or regular, and diffuse, or irregular. Specular reflection produces images of objects and

gives shine or gloss to surfaces. Diffuse reflection gives surfaces a mat or dead finish.

Surface brightness is the intensity of light emitted by a surface. It is measured by the lambert, which is the brightness of a surface of one square foot which emits light of 2 c.-p. The mille-lambert is .001 of this unit.

The physical efficiency of a lighting system is the amount of light received on an imaginary plane 30 inches from the floor, divided by the number of watts used in generating the light, and is thus expressed in lumens per watt.

Electric lamps are of two classes: arc and filament lamps, which give a continuous spectrum, and vapor lamps, which give a line spectrum.

Accessories in the form of globes and reflectors are used with lamps to modify the distribution of light.

In the next article we will discuss the elements of vision; that is, the construction and operation of the eye.

UNITED STATES IMPORT DUTIES ON RUBBER GOODS

The following list has been taken from a schedule prepared by the Bureau of Foreign and Domestic Commerce solely for statistical purposes. This schedule will not be deemed authority for deciding, in doubtful cases, the rate of duty properly chargeable upon any imported article named therein.

Class No.	Tariff Paragraph		Unit of Quality	Rate of Duty
CRUDE RUBBER, ETC.				
20,011	513	Wild rubber	pound	Free
20,021		Plantation rubber	pound	Free
20,031		Guayule	pound	Free
20,041		Jelutong (Pontianak)	pound	Free
20,051		Balata	pound	Free
20,061	502	Gutta percha	pound	Free
21,311		Crude chicle	pound	\$0.15
21,321	36	Chicle, refined, dried, stained	pound	\$0.20
SCRAP AND RECLAIMED RUBBER				
20,111	513	Reclaimed rubber	pound	Free
20,121		Scrap or refuse	pound	Free
RUBBER SUBSTITUTES				
20,211	385	Crude	pound	10%
20,212		Advanced by manufacture	pound	15%
RUBBER MANUFACTURES				
20,401	368	Druggists' sundries	pound	15%
20,671		Rubber tires and tubes	number	10%
20,911	262	Belting of cotton or other vegetable fiber and rubber	pound	15%
20,991	368	Other manufactures of rubber	pound	10%
20,995		Of gutta percha	pound	10%
20,999	369	Of vulcanized or hard rubber	pound	25%
MANUFACTURES CONTAINING RUBBER				
31,425	262	Garters, suspenders, braces of cotton	number	25%
31,426		Tire fabrics of cotton	square yard	25%
33,995		Garters, tire fabrics, suspenders, braces, made of vegetable fibers and rubber	yard	25%
36,991	292	Webbings, suspenders, braces, of wool and rubber	pound	35%
37,315	316	The same, of silk and rubber	pound	45%
RUBBER AND OTHER WATERPROOFED CLOTH				
39,161	254	Cotton or other vegetable fiber and rubber	square yard	25%
39,162	318	Silk, chief value	square yard	45%
39,163	288	Wool, chief value	square yard	35%
39,164	308	Mohair, chief value	square yard	40%
WATERPROOF CLOTHING				
39,181	256	Cotton or other vegetable fiber and rubber	pound	30%
39,182	317	Silk, chief value	pound	50%
39,183	291	Wool, chief value	pound	35%
39,184	308	Mohair, chief value	pound	40%
39,185	278	Flax, hemp or ramie and rubber	pound	25%
60,894	114	Insulated wire	pound	15%
60,898	124	Card clothing, not attached to carding machines or parts of, manufactured with plated wire with rubber-face cloth	square foot	35%
61,394	138	Rivets, studs, for non-skid automobile tires	pound	20%
93,192	157	Fountain pens	gross	25%
94,313	368	Golf, tennis, foot basket and baseballs, chiefly of rubber	pound	10%
94,314	369	The same, chiefly of vulcanized rubber	pound	25%

A Ten-Year Financial Survey of the Rubber Industry

By Richard Hoadley Tingley

COMPARED with other "big business" in the essential commodities, wool, cotton, iron, the grains, etc., the rubber industry is but an infant in point of age, yet its lusty growth during the past few years has been so phenomenal and has placed it, young as it is, in such a premier commercial position, that a brief review of its wonderful strides into prominence will not be out of place. Escaping, up to now, most of the maladies to which children are usually subject, it is suffering at the moment with its first disorder. As in most children's diseases, however, the patient is considered to be in no danger and is expected soon to be up and about as usual—better than before.

There are hundreds of rubber manufacturing companies, large and small, that make every conceivable thing from that raw product, from buttons and "human shock absorbers" to the big tire casings and inner tubes. It takes many factories to use up the two hundred odd thousand tons of crude rubber that annually comes into this country. To enumerate all the important rubber manufacturers and to give an account of their doings is too much to be contained in a magazine review. Out of the hundreds, however, I have selected ten, whose financial operations I shall review, and out of the ten, there are six of the largest to which special attention will be paid in order to bring out, in graphic form, some of the big figures that are involved in the industry. These six are the United States Rubber Co., the Goodyear Tire & Rubber Co., The B. F. Goodrich Co., Kelly-Springfield Tire Co., The Fisk Rubber Co., and the Ajax Rubber Co., Inc.

Regarding the history of what these six have been doing, I shall say nothing but what is contained in the financial graph herewith. Regarding the other four, the Firestone Tire & Rubber Co., Hood Rubber Co., The Miller Rubber Co., and The McGraw Tire & Rubber Co., I shall tabulate some of the leading financial figures bearing on each.

In what follows I wish to draw particular attention to the fact that no attempt has been made, except in the graphs where price ranges have been brought nearly to date (December, 1920), to display any of the 1920 figures of capital, earnings, balances, etc.

FIRESTONE TIRE & RUBBER CO.

This company was incorporated in Ohio in 1910, taking over a company of the same name which dates back to a West Virginia incorporation of 1900. In addition to rubber products, it manufactures steel rims for tires, with plants at Akron and Hamilton, Ontario, Canada. Table A speaks for itself. The company has no funded debt.

TABLE A
FIRESTONE

	Net Income	Dividends Paid	Operating Surplus	Stock Outstanding		
				1st 6% Preferred	2d 7% Preferred	6% Common
1920				\$10,000,000	\$10,000,000	\$3,500,000
1919	\$9,307,000	\$2,507,009	\$6,709,000	10,000,000	10,000,000	3,500,000
1918	6,520,000	2,610,000	3,910,000	8,500,000	.....	3,500,000
1917	5,051,000	1,735,000	3,316,000	8,500,000	.....	3,500,000

TABLE B
FIRESTONE

	Price Range 6% Preferred		Common	
	High	Low	High	Low
1920	99½	...	200	...
1919	101	97	205	140
1918	101	93½	150	89½
1917	108½	97	150½	97
1916	107¾	107	155	132

HOOD RUBBER CO.

Incorporated under the laws of Massachusetts in 1896, this company manufactures rubber boots, shoes and tires at its plant at Watertown, Massachusetts. It is said to be the largest independent rubber footwear company in the country, having a daily

capacity of 75,000 pairs. The company publishes no income and expense sheet, and has no funded debt. Table C will show its financial position.

TABLE C
HOOD

	Gross Sales	Common Stock	7% Preferred Stock	Assets	Surplus
1919	\$22,969,000	\$3,000,000	\$5,000,000	\$16,067,000	\$2,864,000
1918	22,341,000	3,000,000	4,000,000	15,046,000	2,660,000
1917	18,574,000	3,000,000	4,000,000	13,748,000	2,312,000
1916	11,662,000	2,500,000	2,750,000	8,607,000	1,077,000
1915	9,084,000	2,000,000	2,500,000	7,355,000	1,275,000

The 7 per cent dividends have been regularly paid on the preferred stock since 1908. The common stock has been on a 12 per cent basis.

On October 27, 1920, the directors voted to change the existing common stock into an issue of 100,000 shares of no par value. The exchange has been made on the basis of two new shares for every one (\$100) share held of the old stock.

THE MILLER RUBBER CO.

Incorporated in Ohio in 1906, this company owns The Miller Rubber Company of New York and of California. It has a capital stock outstanding of \$10,000,000 in 1st preferred and \$5,060,500 in common. Par value of shares, \$100. In February, 1920, the authorized capital was increased from \$20,000,000 to \$60,000,000, of which \$40,000,000 is to be 8 per cent cumulative preferred, par \$100, and \$20,000,000 common stock, par \$10. There is no funded debt.

TABLE D
MILLER

	Net Earnings	Dividends Paid	Operating Surplus
1919	\$2,904,000	\$710,651	\$932,896
1918	1,650,000	528,243	214,660
1917	1,355,000	417,921	413,351

TABLE E
MILLER

	First Preferred		Second Preferred		Common	
	High	Low	High	Low	High	Low
1919	111	99¾	107	102	227	145
1918	100¼	90	...	...	160	99¼
1917	107	95	...	...	262½	112
1916	112¾	101¾	...	...	268½	241¼
1915	113¾	113	...	...	279½	193

THE MCGRAW TIRE & RUBBER CO.

This company was incorporated in April, 1913, in Ohio. Its plant at East Palestine, Ohio, has a capacity of 5,000 tires and 5,000 inner tubes a day.

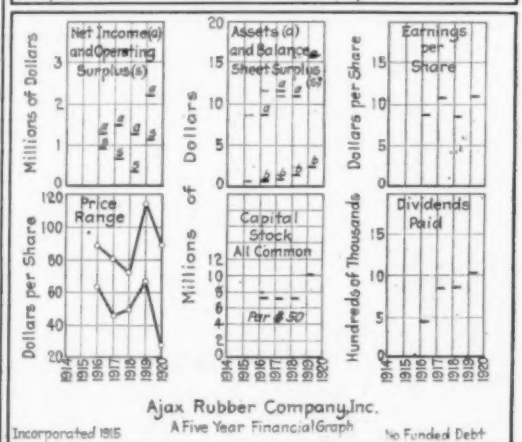
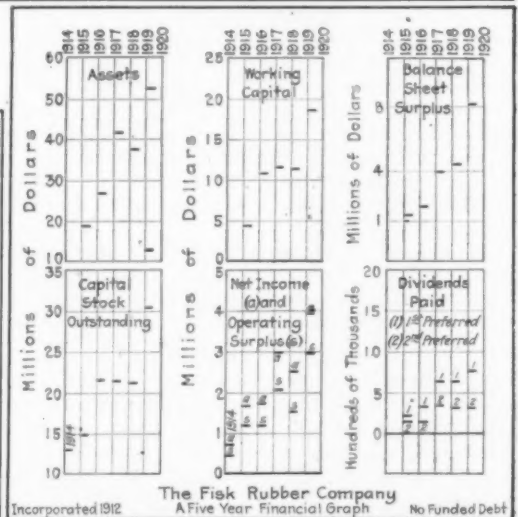
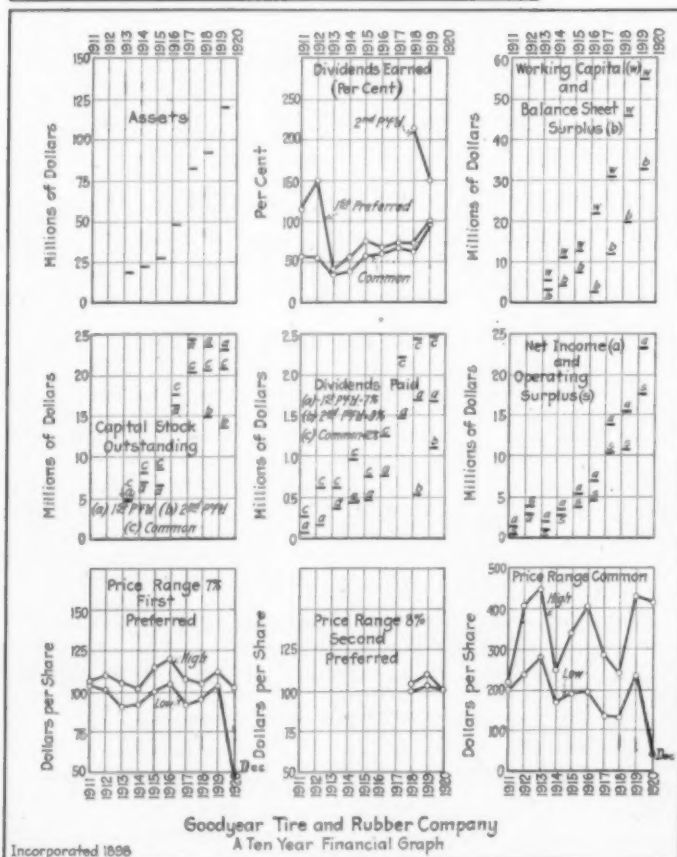
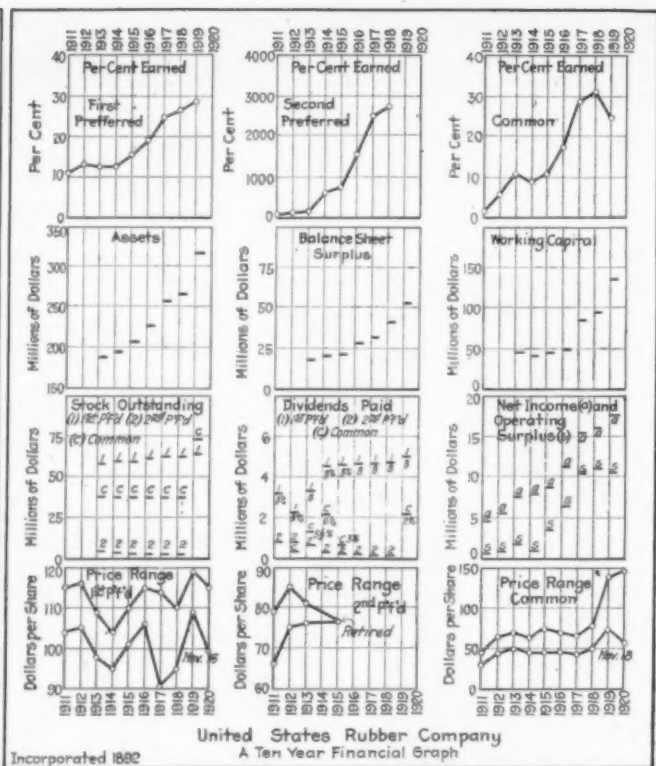
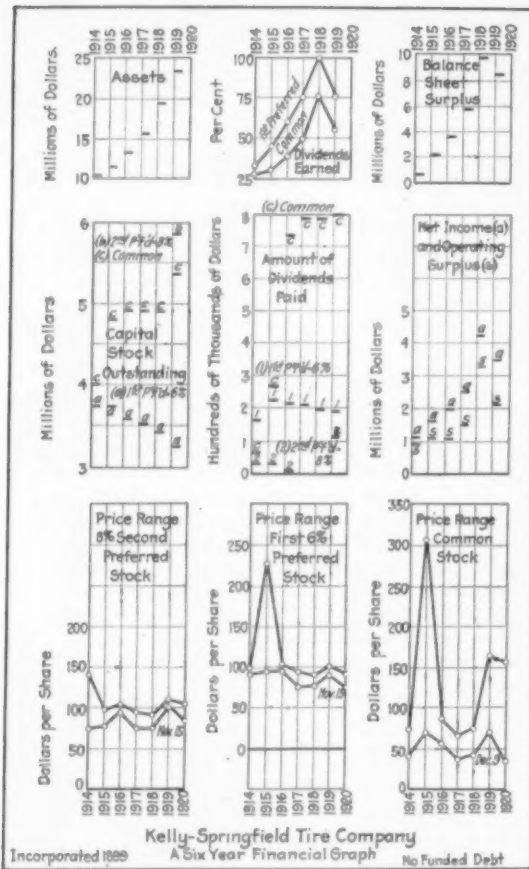
TABLE F
MCGRAW

	Net Profits	Capital Stock		Assets	Balance Sheet Surplus
		7% Preferred	Common		
1919	\$380,393	\$2,500,000	\$496,540	\$6,362,000	\$1,621,000
1918	165,131	870,000	1,300,000	4,970,000	495,000
1917	726,832	1,000,000	1,333,333	5,246,000	601,000
1916	255,442	1,000,000	1,333,333	4,852,000	261,000
1915	312,306	500,000	750,000	.....	.....

There is no funded debt on the property; 7 per cent dividends have been regularly paid on the preferred stock. On the common stock, whose par value was formerly \$100, 12 per cent dividends have been paid through 1919. In 1920, the common stock issue was changed to 100,000 shares, no par value, and an initial dividend was paid on this stock March 1, 1920, amounting to 75 cents a share.

SUMMARY

The foregoing discloses some big figures that did not exist before. It discloses, for the year 1919, total assets amounting to \$822,820,000 and a net working capital of \$333,894,000. It tells



FINANCIAL STANDING OF TEN OF THE LARGEST RUBBER COMPANIES, AS OF 1919

TABLE G

	Assets	Capital Stock Out	Dividends Paid	Net Working Capital	Net Income	Year's Operating Surplus
United States Rubber Co.....	\$319,534,000	\$135,032,000	\$7,140,000	\$134,903,000	\$17,730,000	\$10,570,000
The Goodyear Tire & Rubber Co.....	120,276,000	57,429,000	5,303,000	54,795,000	23,277,000	17,973,000
The B. F. Goodrich Co.....	175,716,000	97,812,000	4,647,000	55,951,000	17,304,000	12,658,000
Kelly-Springfield Tire Co.....	23,796,000	14,459,000	1,117,000	11,555,000	3,236,000	2,120,000
The Fisk Rubber Company.....	53,389,000	30,264,000	1,055,000	18,569,000	3,994,000	2,939,000
Ajax Rubber Company, Inc.....	15,650,000	10,000,000	1,032,000	8,352,000	2,201,000	1,168,000
Firestone Tire & Rubber Co.....	73,753,000	23,500,000	2,598,000	33,791,000	9,307,000	6,709,000
Hood Rubber Company.....	16,067,000	8,000,000	710,000	6,252,000	.....	.....
The Miller Rubber Co.....	18,287,000	15,061,000	711,000	6,251,000	2,250,000	933,000
The McGraw Tire & Rubber Co.....	6,362,000	2,996,000	175,000	3,475,000	380,000	.....
* Totals	\$822,830,000	\$394,553,000	\$24,488,000	\$333,894,000	\$79,679,000	\$55,070,000

TABLE H

STATISTICS OF THE RUBBER ISSUES, NOVEMBER, 1920

Company	Common Stock	Par Value	Ann. Div.	Price Nov. 13	Investment Yield	High 1919	Low 1919	High 1920	Low 1920	Assets per Sh.	Earnings First 6 Mos.
Ajax Rubber Co., Inc.....	\$10,000,000	\$50	\$6.00	\$32	18.8	113	66	83½	38¾	51.00	\$7.64
The Fisk Rubber Co.....	12,254,000	25	3.00	15½	20.0	55	39¾	48	19¾	16.00	2
The B. F. Goodrich Rubber Co.....	600,000 sh.	No par	6.00	44¾	13.3	93½	56¾	86¾	48	96.33	12.66
The Goodyear Tire & Rubber Co.....	30,755,000	100	10.00	44¾	14.6	430	227	415	103	261.00	2
Kelly-Springfield Tire Co.....	5,361,978	25	4.00	39¾	10.3	164	68	152½	90¾	58.00	17.43
Lee Tire & Rubber Co.....	150,000 sh.	No par	2.00	19	10.1	40	21	18½	18¾	30.17	3.40
United States Rubber Co.....	81,000,000	100	8.00	64¾	12.3	139½	173	143¾	74¾	182.00	13.79

‡Not reported.

†Before taxes, but after deduction of preferred dividends.

*Plus stock dividends of 3 per cent quarterly.

Compiled by M. S. Wolfe & Co., New York City.

the story of a dividend disbursement of \$24,488,000 in that year on a capital outstanding of \$394,553,000, or an average of more than 6 per cent. on all classes of stock. It tells the story of a net income and an operating surplus amounting to \$79,679,000 and \$55,070,000, respectively.

The operations of these ten companies for the year 1919 are summarized in table G.

Illustrating the value of the common stock of the rubber companies whose shares are most active in the market, I introduce the above table H, which relates to conditions as they existed in November, 1920.

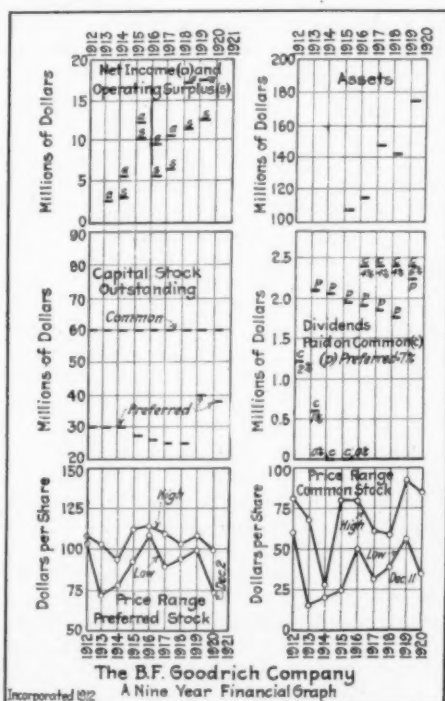
SELLING SAFETY IN THE FACTORY

Methods of furthering the Safety First movement by "selling safety" to every member of a manufacturing concern were aptly described by H. T. Martin, manager of the Health and Safety Department of The Fisk Rubber Co., Chicopee Falls, Massachusetts, in a paper read before the Rubber Division of the Ninth Annual Safety Congress held last September in Milwaukee, Wisconsin. One of the best mediums, he found, for safety propaganda was the factory house organ when made really interesting. Readers at home, often more impressed than the operative, generally pressed the caution-first articles on his attention. Moving pictures of safe and unsafe ways of working have been used with success by larger concerns. Safety first meetings of workers, with some "good time" features added, are also helpful in arousing interest and lessening accidents.

Cumbersome general rule books often confuse a new operative, when he would readily grasp a few simple, concise department rules such as a foreman might outline, subject to approval of the Safety Department. A No-Accident Day is also featured in some big shops, the date being well advertised and scoreboards being provided for all departments. On such days no accident counts unless it results in loss of time. Some inducement is given for the best score in safety contests. Sometimes the workers themselves stake small amounts in a pool to be given the winning department for a picnic or theatre party, the shop sometimes adding to the stake to show interest. It is found advisable often to induce workmen to take an active part in the accident prevention program by putting the more intelligent on inspection committees.

The victim of a shop accident is often a most effective safety first medium. The factory doctor, safety man, compensation insurance man and nurses can help to make an injured man returning to work a very effective safety salesman. A court of inquiry on all serious accidents, conducted by the factory manager, usually puts foremen on their mettle and they see to it, if possible, that no worker is badly harmed while in their charge. To deeply impress workers, Mr. Martin says, instructions should be given briefly and often.

THE NETHERLANDS EAST INDIES PROPER COMPRISE THE ISLANDS of Java and Madura (Madoera); other Netherlands possessions in the Malay Archipelago, including parts of Borneo, etc., are grouped generally as outlying possessions.



What the Rubber Chemists Are Doing

THE ACTION OF LIGHT ON RUBBER¹

In this paper the author, B. D. Porritt, cites many observations and investigations of the prejudicial effects of light on rubber, technically known as "perishing," beginning with the observations of Thomas Hancock, nearly 100 years ago, who found that by blackening the surface of the rubber, deterioration could be prevented. Similarly the deleterious effect on the rubber proofing of certain dressings present in the dyed fabrics, presumably metallic mordants, was remarked by him, as also was the fact that the non-caoutchouc constituents of the rubber exercised a marked protective effect.

DETERIORATION OF BALLOON FABRICS

Many eminent chemists have studied at many different angles the subject of perishing of rubber, one of the practical aspects being the deterioration of balloon fabrics.

Two types of protection have been found to give satisfactory results. One involves the employment of small proportions of litharge and other ingredients in the proofing mixture and probably depends mainly on the formation in the rubber of lead sulphide in a colloidal form. The other, which has been termed the "molecular protection process," involves the selective absorption of the ultra-violet light by a suitable colored organic compound actually dissolved in the rubber.

By the use of either of these two methods, especially if combined with some of the earlier protective processes, it is probable that at present the determining factor for the life of a balloon envelope in the tropics is the durability of the textile rather than of the rubber.

MASTICATION AND SUSCEPTIBILITY OF RUBBER TO LIGHT

With a view to determining whether the changes produced by the process of mastication have any effect on the susceptibility of raw rubber to light, a range of samples was obtained throughout the operation, and from these solutions were prepared and exposed, the viscosities being determined at intervals. The results would suggest that the physical changes produced in rubber by mastication are not necessarily the same as the initial effects arising from the exposure to light and air, and that the stability to light may increase rather than diminish with the severity of the treatment, though this is at variance with the results of Weber, who found that "overmilled rubber was prone to oxidation."

SOLARIZATION AND USE OF ULTRA-VIOLET RAYS FOR VULCANIZING SOLUTIONS

It is desirable to draw attention to the fact that the action of light and air on rubber is not always associated with ill effects. In the early days of the industry, exposure to sunlight, a process termed "solarization," was frequently employed to produce a type of surface vulcanization.

A comparatively recent development of this old process involves the use of light sources rich in ultra-violet² for the production of "solutions" of vulcanized rubber. Under the influence of a quartz mercury vapor lamp, a solution of rubber and sulphur undoubtedly sets to a stable "gel," accompanied by the combination of a small proportion of the sulphur.

Under ordinary daylight conditions it is found, however, that the addition of sulphur to a rubber solution, if anything, accelerates the rate of viscosity diminution, and it was consequently thought of interest to see whether the removal of oxygen would

enable the sulphur to respond to the more feeble incident radiation. An experiment in this direction did not, however, produce the anticipated result, those solutions to which crystalline sulphur had been added showed no apparent change after several months' exposure, while the blank sample containing rubber only, after a few days suddenly set to a "gel" without any obvious preliminary increase in viscosity. This gel on exposure was found to be rapidly transformed to a liquid.

PROJECTED NEW VISCOMETER

It is hoped shortly to design a viscometer which will enable these peculiar changes to be studied more thoroughly, using specially purified materials in view of the marked effects produced by traces of acid, and to verify Van Rossem's statement that, even in the absence of air, the action of light results in a reduction of the viscosity of rubber solutions.

While it would appear likely that the presence of air is not favorable to the light vulcanization effect, it must be noted that in the nascent condition oxygen is itself capable of producing a similar result, since organic peroxides which have recently been put forward as vulcanizing agents³ have been proved in a measure to function as such.

AN IMPORTANT EFFECT

It may be of interest to draw attention to the important, but generally unrecognized effect which is produced in the vulcanization of rubber by the agency of sulphur and heat when this process is carried out in the presence of air. Goodyear's discovery of this remarkable transformation was due to the accidental heating of a piece of rubber containing sulphur and white lead. Hancock, when independently endeavoring to obtain the same result, secured no success by heating samples containing rubber and sulphur alone and ultimately discovered that to effect the change desired it was necessary to immerse the rubber in molten sulphur.

Technical experience has confirmed these early observations and proved that with sulphur only the absence of air is necessary to insure vulcanization, while to secure satisfactory results by the "dry heat" process, the use of a positive catalyst such as litharge, in addition to sulphur, is indispensable.

OXIDATION IN ABSENCE OF LIGHT

Comparatively little is known regarding the mechanism of the changes which take place during the perishing of vulcanized rubber, beyond the fact that the final products resemble those of raw rubber in properties and composition; that oxidation takes place in the absence of light if the material has been overvulcanized and is probably promoted by the presence of various catalysts.

Recent work, however, has shown that marked alterations take place on aging in the tensile properties of overvulcanized rubber prior to oxidation setting in,⁴ and it is possible that in this preliminary physical change oxygen is again functioning as a catalyst—a suggestion which is now under investigation.

WAYS IN WHICH LIGHT AND OXYGEN OPERATE TO PRODUCE CHANGES

1. Under ordinary conditions the action of light and oxygen would appear to take place in two stages, the first being an alteration in the state of molecular aggregation during which oxygen functions mainly as a catalyst and the second a series of chemical reactions in which the active participation of oxygen is promoted by the formation of an autocatalyst, probably a peroxide.

2. The development of the former alteration, which constitutes "tackiness," is probably further promoted or retarded by other

¹ Joint meeting of Faraday Society and the Physical Society of London, 1920. Published in *The India-Rubber Journal*, December 4, 1920, page 21.

² Helbronner and Bernstein, *Le Caoutchouc et la Gutta-Percha*, 1915, 12, 8720.

³ I. I. Ostromyslenski, *Journal of the Russian Physico-Chemical Society*, 1915, 47, 1453-61, and *The India Rubber World*, November 1, 1916, 65.

⁴ Annual Report on the Progress of Applied Chemistry, 1919, page 338.

catalysts, while the final transformation into resinous compounds of indefinite composition, known as perishing, is possibly effected by an entirely different set of activating and inhibiting agents.

3. Though the reduction in the solution viscosity which characterizes the first effects of light and oxygen on rubber can be reproduced by the application of either heat or mechanical working in the cold, it is doubtful whether the changes thereby produced in the rubber are in other respects analogous.

4. In the presence of sulphur and under the influence of a light source rich in ultra-violet, in place of depolymerization, a change resembling vulcanization is induced.

5. In the absence of air, tackiness will not develop in the solid as a result of exposure to daylight, while a benzene-rubber solution under similar conditions sets to a gel which liquifies on reexposure to air.

6. In the absence of actinic light, rubber, either solid or in solution, undergoes no reduction in viscosity as a result of exposure to air, but if previously submitted to a limited amount of mastication tends to regain its initial properties. This change is, however, partially inhibited by oxygen.

7. The efficiency of sulphur as a vulcanization agent, unless supplemented by the presence of an appropriate accelerator, is neutralized by the presence of oxygen.

8. Under certain conditions oxygen would appear capable of assuming the function of a vulcanizing agent.

In considering the foregoing summary of the work in connection with the changes resulting from the action of oxygen and light on rubber, it will be well to remember that the little which is known is either related to chemical properties or else to one physical characteristic, namely, viscosity.

CARBON BLACK INDUSTRY IN LOUISIANA¹

The natural gas fields of Louisiana are considered the greatest gas fields in the United States. The principal gas areas are located in Caddo, Bossier, Cuachita and Morehouse parishes extending across the northern border of the state and in Terrebonne parish on the Gulf Coast. The latter has wells yielding the largest volume, some of them having been estimated at a volume of 90,000,000 cubic feet per day. The Cuachita-Morehouse field, approximately 30 miles long and 18 to 20 miles wide, is unquestionably the greatest gas field known, with wells ranging from 4,000,000 to 40,000,000 cubic feet daily capacity.

The protection of this great natural gas asset with its enormous unknown reserve has become a most serious problem. Natural gas is recognized as a public asset which can yield greater benefit to a larger number of people when utilized for domestic consumption than in any other way. It is questionable, therefore, if the public guardians of such resources should permit the use of natural gas for manufacturing purposes which mean little in a direct way to the community or the state, as, for example, its use for the manufacture of carbon black.

CARBON BLACK PLANTS

There are possibly ten plants in the state now making carbon black from natural gas. They are consuming 70,000,000 cubic feet of gas per day. Unless some check is applied there will be 20 of these plants within another year, which will consume 140,000,000 to 150,000,000 cubic feet of gas per day. At this rate the entire supply of natural gas would be used for the manufacture of carbon black probably within a few years, whereas the economic distribution of this gas throughout the state would result in untold benefit to hundreds of thousands of citizens for a long period of time.

It is not the purpose of the state to hoard the natural gas supply, and where found in isolated localities it is willing to permit

its use for other than domestic consumption. It is the purpose of the state, however, to conserve the gas and to make it of economic value to its people.

The state is now requiring all carbon plants using natural gas to extract its gasoline content before burning the gas for carbon. All carbon companies are required to secure a permit from the state before erecting their plants. These permits are to be renewed every twelve months; renewal is dependent upon the supply of gas.

METHODS OF ANALYSIS

CHEMICAL EXAMINATION OF ANTIMONY SULPHIDES²

A. VAN ROSSEM AND P. DEKKER have investigated the methods proposed by Weber and Sweet,³ and Repony⁴ for the analysis of antimony sulphide as regards (1) degree of acidity; (2) free sulphur; (3) moisture and water of crystallization; (4) calcium sulphate; (5) adulterations. They express their conclusions as follows:

Determining the percentage of free sulphur in antimony sulphide by extraction methods with organic solvents (carbon bisulphide and acetone) is impracticable, as antimony pentasulphide is decomposed by the solvents, free sulphide being liberated.

A method has been devised for determining free sulphur in an indirect way. This can be used on the condition that little or no trisulphide is present.

C. O. Weber's method by dissolving antimony pentasulphide in strong ammonia was extensively tested. It was found that this method can be used only when (a) trisulphide is absent, (b) dissolving the pentasulphide in ammonia of the smallest possible concentration.

The methods of Weber-Sweet and Repony for determining moisture and water of crystallization, calcium sulphate and impurities were revised.

INDIRECT DETERMINATION OF FREE SULPHUR

One grain of antimony sulphide is boiled with 25 cc. of strong hydrochloric acid (specific gravity 1.18) for about ten minutes, then diluted with water and the insoluble part filtered off on a Gooch filter. Should the addition of water produce a white precipitate add a little more hydrochloric acid. The crucible is washed with hydrochloric acid, then with water, and dried at 90 degrees C. The sulphur present is extracted with carbon bisulphide and weighed.

WATER OF CRYSTALLIZATION OF CALCIUM SULPHATE

Heating at 120 degrees C. expels only three-quarters of the water of crystallization of calcium sulphate. It can be fully expelled only by heating at 300 degrees C.

ADULTERATIONS IN ANTIMONY SULPHIDE

Different investigators determine possible adulterations by treating the antimony pentasulphide with caustic potash or soda solution causing such impurities as kaolin, iron oxide, etc., to remain behind. For example, after extraction with carbon bisulphide and water, Repony dissolves the remaining part in ten per cent caustic soda solution on the water bath. At the Institute five samples were tested in this way. Thus it appeared that when the heating on the water bath was prolonged, the quantity of insoluble material became greater, due to the fact on dissolving antimony pentasulphide in caustic soda solution, insoluble sodium antimoniate is formed.

The insoluble part of the five samples referred to was yellowish white, and was entirely soluble in hydrochloric acid, which proved that none of the samples tested contained adulterations insoluble in acid. In order to state the nature of the adulterations analysis of the part insoluble in caustic soda solution is necessary.

¹ Special communication of the Netherland Government Institute, Delft, to The India-Rubber Journal, October 30, 1920.

² Le Caoutchouc et la Gutta-Percha, 15, 9468 (1918).

³ THE INDIA RUBBER WORLD, April 1, 1919, page 360.

⁴ Address of Hon. M. L. Alexander, Commissioner of Conservation of Louisiana, before the American Institute of Chemical Engineers, December, 1920, New Orleans, Louisiana.

AGING OF VULCANIZED PLANTATION RUBBER

THE FOLLOWING is quoted from a report by Dr. H. P. Stevens,¹

The investigation was supplemental to a former one carried out with the usual rubber and sulphur mixing containing ten per cent of sulphur because it was desired to ascertain how far the results thus obtained hold good for mixings containing other ingredients of technical importance. For this purpose a series of progressive cures was made with a mixing consisting of 60 parts of rubber, three parts of sulphur, and 37 parts of zinc oxide. The tests were carried out with three different types of raw rubber, namely: (1) plantation pale crêpe, (2) plantation smoked sheet, and (3) fine hard Pará as a control. The vulcanized specimens were subjected to physical tests at intervals over a long period, and the percentage of combined sulphur was determined shortly after vulcanizing and again after an aging period of three and one-half years. The vulcanized specimens were preserved in a dark cupboard, but were not otherwise protected from atmospheric agencies.

In previous reports it was shown that a rubber vulcanized with ten per cent of sulphur, with no other ingredients, is approximately stable when preserved under ordinary atmospheric conditions for two or three years, provided that the coefficient does not exceed three units. Under these conditions the breaking strain improves over a period and then gradually decreases, but only very slowly. The vulcanized rubber may therefore be regarded as aging satisfactorily from a technical standpoint.

The present results show that the figure for the safe limit of the coefficient must be revised in the case of rubber compounded with five per cent of sulphur and a filler. In this case the rubber with a coefficient of three units shows fairly rapid deterioration on prolonged aging. After one year the rubber with this coefficient has reached the maximum breaking strain and has fallen again to approximately its original value. During the second year the rubber loses about 30 per cent of its original value, after which the breaking strain decreases more slowly and the curve tends more to the horizontal. The approximately stable specimens are those cured to give a coefficient of two or a little higher, certainly not higher than 2.5 units.

In this connection it may be noted that a cure giving a coefficient of three or thereabouts for the rubber compound with ten per cent of sulphur will give a coefficient of about two units for the rubber compound with five per cent of sulphur and filler. It may be that the period and temperature employed in vulcanizing are factors affecting the stability of the vulcanized product. Further experiments are required before any definite conclusions can be reached.

Comparing the three types of rubber, smoked sheet and fine hard Pará give curves more similar in appearance to each other than to pale crêpe. The loss in tensile strength of the aged samples of the latter is more pronounced than with either smoked sheet or fine hard Pará. With this type of mixing, smoked sheet shows up particularly favorably as compared with pale crêpe, and confirms the general impression obtained from previous experiments in which mixings containing zinc oxide were compared with the usual rubber sulphur mix. The latter type of mix, although suitable for general purposes, cannot be taken as universally representative of all types of mixings. It is not merely a matter of dilution with inert constituents and resulting diminution of effect. It has been found, for instance, that zinc oxide, ordinarily regarded as an inert mineral, has nevertheless the power of activating certain organic accelerators in a remarkable degree. It is, therefore, not surprising that zinc oxide should bring out differences between smoked sheet and pale crêpe which are not apparent when tests are made on mixings containing rubber and sulphur only.

¹The Bulletin of the Rubber Growers' Association, July, 1920, Volume 2, No. 4, Page 270.

TREATMENT OF CRUDE RUBBER WITH STEAM

The treatment of crude rubber with live steam¹ is claimed to provide a convenient process for eliminating the variations in the physical condition of raw rubber as received from the plantations as well as a convenient method of drying rubber.

According to the invention the raw rubber to be treated may be placed in a suitable container provided with means for the exhaustion of air and the introduction of steam. The steam pressure used varies according to the duration of the treatment, from 10 to 15 pounds per square inch for seven hours, to 60 pounds per square inch for three hours. For any particular lot of rubber the best results are obtained by taking viscosity tests from a sample.

VISCOSITY TEST

The viscosity test above mentioned may be made with one per cent of rubber in benzol in the following manner:

A sample of the steam-heated rubber is dried in a suitable oven at 100 degrees F. It is then cut in small pieces and shaken in a flask at intervals until the rubber has completely dissolved. It is then allowed to settle and the solution carefully decanted into a viscometer of the Ostwald type. The test is conducted in a water bath thermostatically controlled.

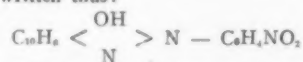
PURE ANTIMONY PENTASULPHIDE

Most grades of antimony pentasulphide contain calcium sulphate in proportions ranging from 30 to 55 per cent. Some rubber goods manufacturers object to the presence of calcium sulphate, owing to its water of crystallization, and nearly all recognize its defect as a filler on account of the relatively large size of its particles. The Rare Metal Products Co., Belleville, New Jersey, has developed a pure pentasulphide of antimony, free from adulteration, and containing 16 per cent free sulphur. It is claimed that this material will produce a handsome red tube of fine texture at a cost lower than when the adulterated product is used.

THE REDUCTION PRODUCTS OF PARANITRANILINE RED AS VULCANIZATION ACCELERATORS

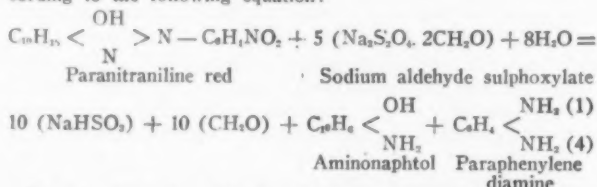
By André Dubosc

When paranitraniline is treated with nitrate of soda in the presence of hydrochloric acid, a diazo combination is obtained which with a solution of β -naphtholate of soda generates paranitrobenzene-azo- β -naphthol or paranitraniline red, the formula of which may be written thus:



This body is well known by dyers and calico printers, who cause its formation on the textile direct, by foularding the fabrics in a solution of β -naphtholate of soda, followed, after drying, by immersion in a solution of diazoparanitraniline.

Paranitraniline red under reducing action, particularly of hydrosulphites or of aldehyde sulphonylates, reduces and divides, forming two bodies, aminonaphthol and paraphenylene diamine, both of which are excellent accelerators. The reaction takes place according to the following equation:



Thus by the action of hydrosulphites two powerful accelerators can easily be obtained from a well-known coloring matter and this method is general for all combinations of naphtholates with diazotized amines.

¹British patent No. 150,043.

CHEMICAL PATENTS THE UNITED STATES

COMPOSITION FOR SEALING PUNCTURES IN PNEUMATIC TIRES, consisting of ground wood, comminuted mica, soapstone and water.—Nelson O. Selby, Middletown, Ohio. United States patent No. 1,363,438.

VULCANIZED RUBBER CONSISTING BEFORE VULCANIZATION OF A mixture of rubber, inert matter, selenium, and an accelerator of the aromatic series.—Charles R. Boggs, Arlington Heights, Massachusetts, assignor to Simplex Wire & Cable Co. United States patent No. 1,364,055.

THE UNITED KINGDOM

PLASTIC COMPOSITIONS SUITABLE FOR USE AS SUBSTITUTES FOR india rubber, artificial leather, insulation, paints, varnishes and cements are obtained by mixing alkyl, aryl or aralkyl ethers of cellulose, starch, dextrine or other carbohydrates, or of their derivatives or conversion products, with the viscous oily liquids obtained when acetylene reacts in the presence of aluminum chloride with the hydrocarbons occurring in tar oils and possessing a boiling point above 140 degrees C. Mixing may be effected with or without the use of volatile solvents, and to the mixture may be added other plastic substances, softening substances, dyes, filling materials and pigments.—L. Lilienfeld, 1 Zeltgasse, Vienna, Austria. British patent No. 149,319.

SYNTHETIC RESINOUS OR ASPHALT-LIKE BODIES OBTAINED BY treating phenols with oxygen under pressure.—F. Fischer, 2 Kaiser Wilhelm Platz, Mulheim, Germany. British patent No. 149,979.

SYNTHETIC RESINS. POLYMERIZED COUMARONE, INDENE, ETC.—The Barrett Co., 17 Battery Place, New York City, U. S. A. British patent No. 149,982.

RUBBER SPONGES ARE FORMED SO AS TO HAVE LARGE AND SMALL pores in different parts of the sponge, either by vulcanizing together superimposed layers of two different compounds which will yield on vulcanization portions having large and small pores, or layers of the same compound, one part of which has been masticated more than the other. A compound which yields small pores consists of Pará rubber, milk of sulphur, lithopone, crimson sulphide of antimony, or vermilion ceresin wax, pine oil, together with ammonium carbonate or amyl acetate. In a compound for yielding large pores, larger proportions of ammonium carbonate or amyl acetate are used. Precipitated chalk and zinc oxide are used in place of lithopone, and turpentine may partially replace pine oil.—G. W. Beldam, Boston Lodge, Windmill Road, Ealing, London, and A. U. B. Ryall, Glamorgan House, Brentford, Middlesex, England. British patent No. 151,084.

A COMPOSITION FOR USE INSIDE A PNEUMATIC TIRE TO RENDER it self-sealing when punctured, consists of flakes of pliable material, such as mica, rubber, waterproofed fabric, paper, etc., mixed with a paste made from finely ground china clay, silica, chalk, alumina, etc., and water or other liquid, such as treacle or a solution of glue or gum.—W. M. Brothers, Clifton Lane, Ruddington, Nottinghamshire, England. British patent No. 151,499.

ANTI-CORROSION COMPOSITION WHICH MAY BE USED TO IMPREG- nate a cement or concrete layer to form a damp-proof course, consists of asphalt dissolved in a volatile solvent, such as benzol or petrol, metallic oleates or stearates of calcium, and addition of crude rubber, gutta percha and mineral filling materials.—C. H. Iverson, 72 Coombe Lane, Wimbledon, and G. S. Roberts, 74 Earl's Court Road, both in London. British patent No. 151,666.

THE DOMINION OF CANADA

WATERPROOFED FABRIC AND VULCANIZED ARTICLE.—William Beach Pratt, Wellesley, Massachusetts, U. S. A. Canadian patents Nos 206,483 and 206,484. These relate to the same subject matter (Toron) as United States patents Nos. 1,349,909-1,349,914, inclusive. See THE INDIA RUBBER WORLD, LXIII, No. 1, 29-30.

COATED PRODUCT COMPRISING A BACKING OF WOVEN FABRIC already provided with a pyroxylin coating and on top of this a coating containing pyroxylin and an adhesive adapted to become adherent upon the application of water.—The Canadian Fabrikoid, Limited, Montreal, Quebec, Canada; assignee of the Du Pont Fabrikoid Co., Wilmington, Delaware, assignee of Harry J. Hoan, Newburgh, New York, both in U. S. A. Canadian patent No. 206,524.

BALLOON FABRIC, MADE OF TWO PLIES OF SUITABLE THIN textile materials united by an intermediate gas-tight layer of bird-lime which has been thinned by heating to about 180 degrees F. and mixing gradually therewith alcohol and to which a solution of perchloride of mercury in water has been added in the proportion of one-tenth per cent by weight of bird-lime before thinning.—Charles Angus Cleghorn, Brackenside, Woburn Sands, County Bedford, England. Canadian patent No. 206,614.

TIRE FILLING COMPOSITION, CONSISTING OF CELLULOID, EIGHT ounces; shellac, four ounces; rosin, two ounces; ether, two ounces, and alcohol, 20 ounces.—Albert F. French and William I. French, assignee of a half interest, both of Detroit, Michigan, U. S. A. Canadian patent No. 206,795.

LEATHER SUBSTITUTE, CONSISTING OF IMPREGNATING A FIBROUS material with a mixture of gas tar and linseed oil varnish, drying the impregnated material at 100 to 110 degrees C. to evaporate the benzol, followed by a period of aging.—Anhydrot Leder Werke, A. G., assignee of Kurt Haring, both of Hersfeld, Germany. Canadian patent No. 206,809.

GERMANY

RUBBER, GUTTA PERCHA, BALATA, ETC., ARE IMPROVED AS TO their plasticity and adhesiveness by being heated with a rubber solvent, such as petroleum naphtha or benzene, phenol, aniline or their homologs, the solvent being subsequently removed. The products are easily soluble, plastic, adhesive and capable of absorbing the usual compounding ingredients.—Ungarische Gummiwaren-fabrik, A. G. German patent No. 323,732.

OTHER CHEMICAL PATENTS

GERMANY

PATENTS ISSUED, WITH DATES OF ISSUE

- NO. 320,741** (February 27, 1918.) Method for the prevention of oxidation of synthetic rubber products. Badische Anilin-und Soda-fabrik, Ludwigshafen.
- 331,031** (December 6, 1917.) Method for making solutions of high viscosity out of such artificial rubbers as do not dissolve readily in ordinary solvents or whose solutions are not viscous enough. Accumulatorenfabrik Akt. Ges., Berlin.
- 331,334** (February 15, 1918.) Method for making rubber-like masses. Graf Friedrich de la Rosée, Garmisch-Partenkirchen.
- 331,943** (December 29, 1917.) Method for making a substitute for hard rubber. Ehrlich Gabriel, Frankfurterstrasse 2, Siegen i. w.
- 332,305** (March 28, 1918.) Method for the prevention of oxidation of synthetic rubber products. Badische Anilin-und Soda-Fabrik, Ludwigshafen.
- 332,347** (January 16, 1919.) Method for increasing the elasticity of synthetic or natural rubber. Farbenfabriken formerly Friedrich Bayer & Co., Leverkusen.

LABORATORY APPARATUS

LABORATORY VENTILATION

LABORATORY ventilation, especially that of laboratory hoods, is as important as it is difficult. The use of metal pipes for ducts has until recently not proved satisfactory owing to their rapid corrosion. Tile pipes, while not subject to corrosion, are difficult to erect and connect, and are liable to breakage and always unsightly.

All these difficulties seem to be overcome by the use of special ducts consisting of a combination of sheet iron, with a basic protection coating of asphalt and treated on the inside with a special acid-resisting paint.

"CRUDE RUBBER AND COMPOUNDING INGREDIENTS" should be in the library of every progressive rubber man.

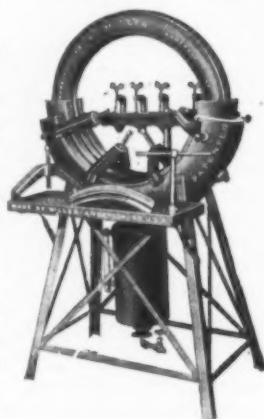
New Machines and Appliances

SECTIONAL VULCANIZER AND RETREADER

MANY tire factories and rubber repair shops are acquainted with the merits of this machine, which is claimed to be suitable for all sorts of work, such as rim cuts, blowouts, bead curing and retreading. Sand or air bags are used with it.

The vulcanizer proper is made in a full half circle, with exceptionally deep cavity, and the steam space extends up the side wall, in order that the bead molds can be used, and the entire surface heated. The inside surface of the vulcanizer is machined accurately to produce a well-shaped tread, with a true and smooth surface for the bead mold to rest on. On either end of the cavity there is an extra long, air-cooled flange to prevent marking or marring the tires. The clamps have extra large screws and are very strong. The greater number of these clamps employed the easier it is to get a well-distributed pressure with the sand or air bags. A hinged joint permits the placing or removing of as many clamps as desired. The bead molds are made of cast iron or aluminum, as preferred.

The rigid and well-constructed stand is of angle iron. The regular outfit includes five pressure clamps, pressure plate, clincher and side-bead molds. When requested, the manufacturer supplies a steam boiler, arranged for gas connection, or equipped with an improved type gasoline force feed burner, having an eight-gallon oil tank, hose and necessary valves.—Charles E. Miller, Anderson Rubber Works, Anderson, Indiana.



MILLER'S ALL-IN-ONE
VULCANIZER

AIR COMPRESSOR FOR GIANT TIRES

This compressor is especially designed for inflating giant pneumatic tires and other heavy service, and should be of practical use in garages, tire and vulcanizing shops, filling stations, etc.

Each equipment consists of a compressor and motor, automatic controller, belt tightener and belt, substantially mounted over a 30-gallon steel air tank. The other fittings are composed of a 300-pound pressure gage, with needle connection and needle valve, and 25 feet of air hose. The tank base is made to be bolted to the floor. All moving parts, with the exception of the fly-wheel, are enclosed. There are no nuts or detachable parts of any kind to work loose inside and cause trouble. Due to the enclosed construction and the intake muffler the compressors are claimed to be practically noiseless.



GLOBE VICTORY AIR COMPRESSOR.

The smaller size has a ½-h.-p. motor and a capacity of 2¼ cubic feet a minute, and a speed of 225 revolutions per minute. The tank is guaranteed under a working pressure of 200 pounds. The larger size is supplied with a 1-h.-p. motor, having a capacity of 4¼ cubic feet a minute and a speed of 350 r. p. m. The guaranteed working pressure of the tank is 250 pounds.

Where portable units are desired, a truck attachment is furnished and 16 feet of cord with plug for electric connection. This is so arranged that there is perfect stability and freedom from vibration when the compressor is in operation. The wheels are lowered only when it is necessary to move the apparatus.—Globe Manufacturing Company, Battle Creek, Michigan.

TIRE REPAIR VULCANIZER

This vulcanizer, for which is claimed the saving of time and labor in repairing and retreading tire casings, consists of a full circle mold with a removable top and a one-piece stationary lower section, having specially designed heat chambers in each. The heat circulates around the entire tire tread and through the condenser, so that no heat reaches the bead.

The self-contained steam generator of three-gallon capacity has an automatic steam condenser and a water gage. The mold can be operated for a week continuously without loss of time to replenish water and get up steam again. The condensing of the water over and over again softens it and eliminates any corrosive effect upon the condensing chamber. The improved type of burner with which the vulcanizer is equipped is said to have a very low fuel consumption. Sixty pounds of steam can be raised in 40 minutes.

With this type of mold, sand bags are not used, but air bags are substituted. The idea is that in vulcanizing the whole surface in one operation there is insured perfect evenness of temperature and uniformity of cure. The evenly distributed pressure of the air bag produces a tread which is free from cracks and with side walls of the proper strength and finish. It has been stated that the time ordinarily required to make a complete cure is 45 minutes.

The aluminum matrices are made to fit inside the mold face and are interchangeable. The regular equipment consists of three sizes of molds with four changeable matrices each.

A tube plate which can be clamped on the mold top is furnished for vulcanizing tube patches. The whole apparatus is compactly built and simple to operate.—Edward Harris, Inc., Los Angeles, California.



HARRIS ONE-OPERATION RETREADER

REPAIR VULCANIZER FOR TRUCK TIRES

This machine will handle 6, 7 and 8-inch pneumatic truck tires, all in the one cavity, by means of reducing shells. This is done by milling out the cavities and the inside of the reducing shell on the same mill as the outside, an exact fit being secured between the cavity and the reducing shell.

The inside curing core supplied with the outfit has a clamp which is designed to give pressure at all points on the tire, from

the center of the tread down to the toe of the bead. The bead molds are machine finished and polished and made to fit accurately all tires of their respective sizes. Bead molds are all made of the same diameter. The flat tread tire molds are made in 6, 7 and 8-inch sizes only, and can be attached to a separate steam generator when desired.

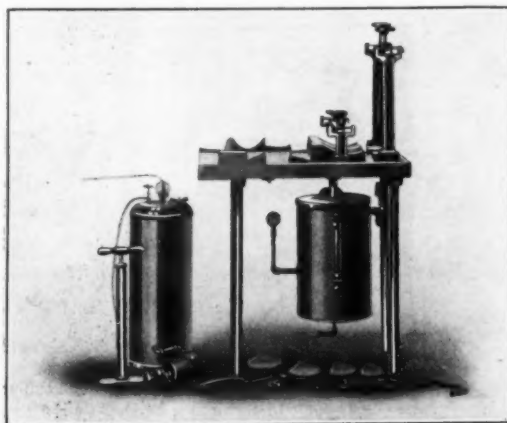


TRUCK TIRE VULCANIZER

However, the round tread mold may be used to cure flat tread tires by making negative pads to preserve the tread pattern. Marking of the tires at the end of the mold is eliminated because the diameter of the reducing shells is milled to conform to the circle of each respective tire. The vulcanizer can be used as a self-contained unit generating its own steam, by means of gas, gasoline or kerosene portable burner outfits. By eliminating the burners, and running an inlet pipe at the top and an outlet pipe of the steam line at the bottom on the other side, it can be connected to a separate steam supply. The additional fittings consist of a steam gage with safety valve, filler valve for the generator, water level valve or indicator. The frame-work is of heavy cast iron.—Auto Tire Vulcanizing Co., Inc., Lowell, Massachusetts.

RUBBER FOOTWEAR REPAIR VULCANIZER

A device of interest to both the tire repair man and the progressive cobbler is the vulcanizer shown herewith for the repair of rubber footwear, inner tubes, hot-water bottles, etc. It opens up a profitable field for the vulcanizer or shoe repair man, when regular business is slack.



RUBBER BOOT AND SHOE VULCANIZER

The vulcanizing table consists of a series of molds on the hot plate, the size of which is 32 by 17 inches. The molds are designed to conform to the different shapes taken by the various angles of a boot or shoe, permitting the repair to be made no matter where the rip, tear or worn out spot may be. The vulcanizing is done on the outside, as no boot lasts or other inside contrivances are used. It is claimed that this outfit will resole, reheel and put patches on the edges, sides, back of the heel, or instep. In addition, it will repair hot-water bottles, hospital sheets, rubber gloves, tennis shoes, rubber coats, football bladders, inner tubes; in other words, any sort of a rubber article.

The illustration shows the device complete with vulcanizing

table mounted on strong legs and the steam boiler in place. The gasoline force-feed burner is ready to be attached to the boiler. The gasoline supply tank is equipped with gage, hand pump and necessary connecting hose. The boiler can be arranged to use gas, or, wherever steam is available, the vulcanizer is sold without the boiler.

From 60 to 65 pounds of steam are required for vulcanizing. The average job requires from 15 to 20 minutes. Seven to fourteen jobs can be accommodated on the table at the same time.—Vulcanizing Machine & Supply Co., Jackson, Michigan.

SANITARY RUBBER CEMENT MIXER

A time saver for mixing small quantities of rubber cement is the electrically driven churn shown herewith. The motor is arranged for either direct or alternating current. Connections for operating are made to an ordinary electric light socket. It is also supplied in the following types and sizes:



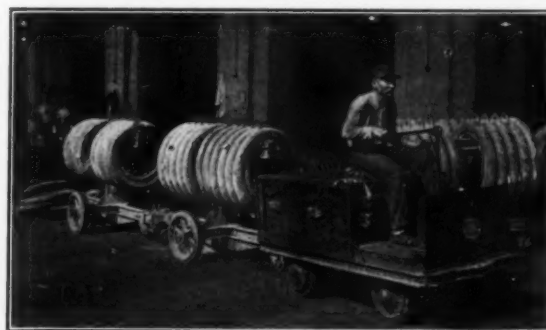
SUPERIOR ELECTRIC CHURN

portable, combination hand and belt power; stationary, combination hand and belt power; and portable hand power. Capacities range from 8 to 25 gallons.

The barrel of the churn is made of non-absorbent glazed stoneware. The cover is annealed glass 1/2-inch thick and the sealing ring is of thick rubber, easily removable for washing. The frame is of varnished pine. All metal parts attached to the barrel are finished with aluminum. The bearings are of steel. A shaft and bracket are attached to the frame for reducing the speed.—Superior Churn & Manufacturing Co., Northville, Michigan.

ELECTRIC TRACTOR FOR RUBBER PLANTS

For hauling tires and cores to and from the vulcanizing room, and other work of a similar nature, the industrial tractor has proven indispensable. The truck shown in the illustration is claimed to haul a load of 3,100 pounds each trip and makes the round in four minutes. A statement has been made to the effect



ELECTRIC FACTORY TRACTOR

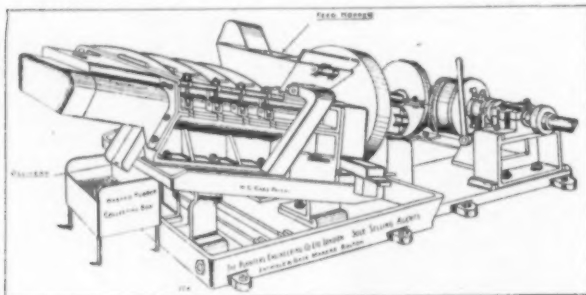
that some of these trucks have been in operation for over seven years and have travelled approximately 210,000 miles.

Each of the four wheels is carried on its own knuckle, thus eliminating road shock to the steering mechanism. The rebound springs which support the frame over the drive wheels protect both the equipment and the operator against jarring when the

drive wheels drop into holes in the floor or yard. The motor is especially designed to require the minimum amount of power to drive or lift whichever the case may be. The tractor frame is so constructed that there is a wide clearance under the truck. The reduction gear or lift motor is well out of the way of any dirt or water. Solid rubber tires are used.—Elwell-Parker Electric Co., Cleveland, Ohio.

PLANTATION BARK AND SCRAP RUBBER WASHER

This machine is designed to quickly and thoroughly wash plantation rubber scrap and bark, removing all traces of dirt and sand, preserving the nerve and strength of the rubber. It consists



CONTINUOUS PLANTATION SCRAP WASHER

of a main roller specially grooved, revolving in a heavy cast iron casing, accurately bored, and heavily ribbed with a secondary roller, used as a feed roller. The rollers are raised at such an angle that the delivery end is higher than the feed end.

The rubber scrap is fed into the machine and passes round between the main roller and the casing, while at the same time it is moved along the surface toward the discharge and where it is delivered in a clean, macerated and amalgamated condition. The average length of the pieces is one inch in diameter by four inches long, ready for passing through the sheeting machines.

The best materials and workmanship are employed in the construction of the machine, which is simple throughout. All moving parts are enclosed. It is designed for a direct drive through a friction clutch, from a main shaft, or fitted with tight and loose pulleys for belt drive. From 10 to 12 h.p. is required to operate it. There is no possibility of oil running on to the rollers or sand and dirt getting into the bearings. The stated capacity of the washer per hour is 350 pounds of wet bark and scrap rubber.—The Planters Engineering Co., Limited, 28 Martins Lane, London, England.

MACHINERY PATENTS

MACHINE FOR FORMING BATTERY JARS

THE PURPOSE of this invention is to provide a machine that will eliminate most of the hand labor necessary in forming battery jars and to also provide a means for heating the mold.

The operation of the machine shown in Fig. 1, is as follows: The mold is placed in position on the hot plate. Air under pressure is admitted to the piston *A*, causing it to move upward, carrying the plunger to the top of the mold. At the same time, plunger *B* forming the cover of the mold is raised to its full extent. This allows a mandrel to be inserted between the plungers and placed within the cup *C*. The mandrel is rounded at the corners, while the cup *C* is square at the corners. The space between the corners of the mandrel and the cup *C* is designed to receive the surplus rubber which will flow thereinto by pressure. The rubber compound comes in square blocks of the same cubic area that will be required to form the complete jar. The rubber block is placed at the mouth of the mold and, as it is heated, becomes fluent and flows around the mandrel.

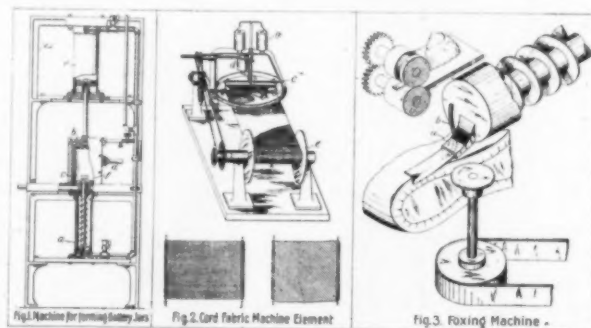
The overflow spaces which receive the surplus rubber are located at the lower end of the mold. There is no opening at the top of the mold when the plunger *B* is in a compressing position, consequently the jar is completely formed before any surplus rubber escapes into the overflow spaces. The surplus rubber ordinarily remains on the bottom corners of the mandrel and can be broken off immediately, or ground off after the jar is vulcanized.

After the mandrel is in position, the mold sections are locked by operating a handle *D*. The uncured rubber is placed within mold on top of the mandrel and steam or compressed air is admitted into cylinder *E* which depresses the plunger *B*. This in turn compresses the rubber until all the space between the mandrel and the mold is filled. Within a suitable length of time, steam or air is exhausted from the cylinder *E* and the plunger *B* returns to its raised position. Handle *D* is then turned to unlock the sections of the mold, which spread by reason of a spring and thus freeing the mold sections from the jar. Piston *A* is next operated, and plunger *F* moves upward, carrying the cup with the uncured rubber jar out of the mold. The jar with the mandrel inside is removed from the cup and cured.—John H. Ten Brink and Alvin V. Martin, Muskegon, Michigan. United States patent No. 1,363,695.

LOOM ELEMENT FOR MAKING CORD FABRIC

This invention relates to an improvement in the method of making cord fabrics for tires, where it is desirable to lay the fabric over a core and evenly extend it in all directions. The weft threads are omitted and a selvage element is provided which prevents the fabric stretching prior to rubberizing or calendering, also increasing the inherent stability. The warp thread is distinct from the selvage element, which may be removed from the fabric after it is rubberized or calendered. It may be cut from any part of the work when desired.

The loom element shown in Fig. 2 is provided with a heavy base with an upright frame supported by a standard. The thread from the bobbins *A* are led upward to a central tube which is in an upright position and connects to the upper end of a tubular



shaft. The thread passes downward through the tubular shaft and emerges at the lower end through a head *B*, bored to accommodate the thread. From here the threads are carried outward and passed through curved guides or eyes *C*, then brought into contact with the warp thread.

The warp thread is supplied by bobbin *D*. The tubular thread guides or eyes are mounted on a rotatable sleeve also connected to head *B*. The warp thread is continuously looped around the selvage element. In order to retain the selvage threads in their proper space relation during the process of looping and to guide the fabric toward the take-off, means *E*, space guides are provided. These guides so direct the course of the fabric as to produce a transverse distortion or the bias relation between the warp thread and the selvage thread. The guides consist of a

rotating roller on a shaft which extends lengthwise of the weaving zone and is journaled in brackets. The width of the fabric to be produced is regulated by these brackets.

A roller with flanged edges serves to hold the edged portion including the selvage of the fabric. The take-off *E* exerts a strain or a pull upon the fabric as it is produced, firmly engaging the fabric with the rollers so as it is formed the fabric is drawn down, about and under the rollers, then off to the take-off.—Howard I. Morris, assignor to the Savage Tire Co.—both of San Diego, California. United States patent No. 1,358,094.

MACHINE FOR PRODUCING AND APPLYING FOXING

In the manufacture of rubber footwear, such as tennis shoes, sneakers and arctics, the foxing used as the intermediate strip between the edges of the sole and the edges of the upper is usually applied by hand. The object of this invention is to supply a mechanical means for this purpose and which is shown in Fig. 3.

Suitably supported by the frame of the machine is a hopper to which a feed nozzle or die *A* is attached. The rubber compound is placed in the hopper and forced through the nozzle *A* which is placed in close proximity to the feed wheel carrying the lasted shoe. The foxing is formed as extruded and is laid upon the proper portion of the shoe. Cement may be applied in the usual manner, or a small quantity of gasoline from tube *B* will cause the foxing to adhere without the use of cement. In order that the foxing may be laid smoothly in place the rate of speed of the shoe past the former *A* is greater than the speed of forming the foxing, keeping the strip under just enough tension to lay it evenly.

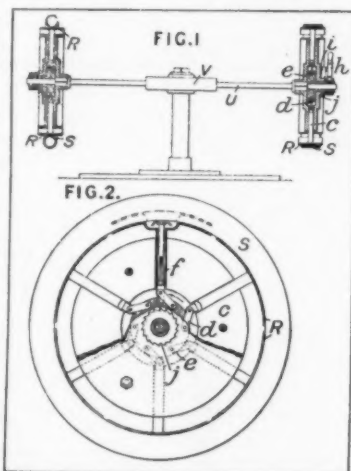
The insert shows another type of former consisting of contacting rolls, one of which has a peripheral groove, the width of the strip to be formed.—Louis A. Casgrain, Beverly, Massachusetts, assignor to United Shoe Machinery Corporation, Paterson, New Jersey. United States patent No. 1,363,308.

MACHINE FOR DEFLATING INNER TUBES

In the final stage of manufacture, inner tubes are inflated for the purpose of locating imperfections, and after inspection they are deflated, usually by a hand-rolling device. The invention here shown is designed to deflate the tubes, automatically and rapidly, in a manner consistent with economical production.

Referring to the illustration the tube *S* is mounted over a series of plates *R* which are radially expanded through connections *c*, *d* to a rotary plate *e*. One of the arms *c* carries block *f* for unseating the valve during the expanding movement. The plate *e* is fitted with an operating-handle *h*, a ratchet *j* and pawl *i* being provided for locking the device when expanded. This holds the tube in shape while the air is exhausted.

A number of such devices may be carried on arm *U* from a central support *V* around which they revolve.—A. Shrader's Son, Inc., Brooklyn, assignee of M. C. Schweinert, New York City, both in New York, U. S. A. British patent No. 151,004 (not yet accepted).



INNER TUBE DEFLATOR

OTHER MACHINERY PATENTS THE UNITED STATES

- N**O. 1,361,208 Inner tube mold having internal bulge around rim-forming portion to form annular recess at inner side of tube. N. G. Warth, assignor to The Climax Rubber Co.—both of Columbus, O.
- 1,361,827 Tire casing curing rim. E. Cassel and F. H. Kunkel, Milwaukee, Wis.
- 1,361,840 Collapsible core for tires. G. E. Eckler, Akron, O.
- 1,362,169 Apparatus for molding and vulcanizing tires. C. Macbeth, Birmingham, assignor to The Dunlop Rubber Co., Limited, Regents Park, London—both in England.
- 1,362,189 Tire-vulcanizing apparatus. B. H. Rose, Lakewood, O.
- 1,362,640 Mold and process for making hollow rubber articles. F. T. Roberts, Cleveland, O.
- 1,362,717 Attachment for tire and tube molds. J. A. McLane, assignor to The Armocord Rubber Co.—both of Morgantown, W. Va.
- 1,362,729 Vulcanizing apparatus for tires. N. Y. Momitsa, Granite City, Ill.
- 1,363,109 Segmental tire core. W. S. Gillette, Bay City, Tex.
- 1,363,150 Tire mold and clamp. J. H. Mulloy, assignor to Morgan & Wright—both of Detroit, Mich.
- 1,363,163 Tire repair tool. C. Nickum, Zion, Ill.
- 1,363,441 Apparatus for building up plies of plastic material. F. A. Steele, assignor to The Goodyear Tire & Rubber Co.—both of Akron, O.
- 1,363,462 Beveling device for rubber tubes. A. E. Falor and F. J. MacDonald, Akron, O., assignors to The B. F. Goodrich Co., New York City.
- 1,363,802 Core stripper for pneumatic tires. W. M. Metzler, assignor to The Goodyear Tire & Rubber Co.—both of Akron, O.

THE DOMINION OF CANADA

- 206,446 Mold for forming tire liners. J. H. Grube, Los Angeles, Calif., U. S. A.
- 206,680 Mold for tires. W. G. Martin, Toronto, Ont.
- 206,752 Rubber mixer. The Farrel Foundry & Machine Co., assignee of D. R. Bowen and C. F. Schnuck—all of Ansonia, Conn., U. S. A.
- 206,987 Rubber mixer. The Farrel Foundry & Machine Co., assignee of D. R. Bowen and C. F. Schnuck, coinventors—all of Ansonia, Conn., U. S. A.

THE UNITED KINGDOM

- 149,577 Apparatus for producing a shaped tire casing from a flat band. E. Hopkinson, 1790 Broadway, New York City, and H. V. Lough, 276 Washington street, Hartford, Conn.—both in U. S. A.
- 149,631 Cutter for trimming molded rubber, etc. E. Coquet, 12 chemin de Fontanières, La Mulatière, Rhône, France. (Not yet accepted.)
- 149,736 Apparatus for coating electric conductors, wire, etc., with insulating, waterproofing, or other liquid or plastic material. F. C. Cook, Woodbridge Cottage, High street, Wargrave, Berkshire.
- 149,739 Electric cable-stripping tool. G. H. Scholes, Meadow Cottage, Dean Row, Wilmslow, and E. A. Claremont, Broom Cottage, High Legh, both in Cheshire.
- 150,163 Feeding devices for rubber-mixing machines. Wood-Milne, Limited, E. R. Pearce, and R. Tooley, Albion street, Gaythorne, Manchester.
- 150,269 Machine for kneading and mixing rubber. A. F. Lohman, Perkins Hill, Akron, Ohio, U. S. A. (Not yet accepted.)
- 150,306 Sectional core for tires. G. H. Wheatley, 1346 Rawson street, Chicago, Ill., U. S. A. (Not yet accepted.)
- 150,346 Tire-molding apparatus. Howe Rubber Corporation, Codwise avenue, assignee of J. Schmidt—both of New Brunswick, New Jersey, U. S. A.
- 150,373 Apparatus for molding and vulcanizing tires. Dunlop Rubber Co., 14 Regent street, Westminster, London, and C. Macbeth, Para Mills, Aston Cross, Birmingham.
- 150,717 Machine for covering tire cores with cord fabric, etc. A. Wolber, 76 rue des Arts, Levallois-Perret, Seine, France. (Not yet accepted.)
- 150,754 Rubber-forming machine. J. W. Gomersall, 16 Maple avenue, Chorlton-cum-Hardy, Manchester.
- 150,792 Device for applying pressure to tires, etc., during vulcanization. T. Sloper, Southgate, Devizes, Wiltshire.
- 151,344 Apparatus for expressing air, gas and water from freshly coagulated raw rubber by perforating. S. C. Davidson, Sirocco Engineering Works, Belfast.
- 151,397 Mold for hollow rubber goods. F. T. Roberts, 1105 Lakeview Road, Cleveland, O., U. S. A.
- 151,500 Apparatus for making tires of concentrically wound layers of rubber. H. C. Higgin, 74 Knightsbridge, London.

GERMANY

DESIGN PATENTS ISSUED, WITH DATES OF ISSUE

- 756,971 (June 1, 1920.) Machinery for making seamless hollow rubber goods. Hans Glaser, Moritzberg near Hildesheim.
- 757,715 (April 10, 1920.) Vulcanization process. Mitteldeutsche Gummiwarenfabrik Louis Peter A.-G., Frankfurt-on-the-Main.
- 757,574 (October 1, 1920.) Vulcanizing apparatus with press springs. Karl Henkel, Siegen i. W.

PROCESS PATENTS

THE UNITED STATES

- N**O. 1,363,229 Forming composite mixture of bituminous material, vulcanized rubber, and water by heating, mixing with rubber, and vulcanizing. J. C. Burdette, assignor to Dryden Rubber Co., Chicago, Ill.

THE DOMINION OF CANADA

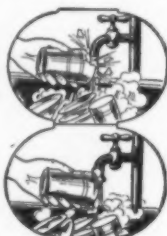
- 206,534 Preparing inner tubes for vulcanization. The Fisk Rubber Co., assignee of M. A. Marquette—both of Chicopee Falls, Mass., U. S. A.

New Goods and Specialties

RUBBER FAUCET ACCESSORY

A VERY USEFUL and quick-selling household specialty with a strong appeal to the housewife is the "Perfection" anti-splasher and dish protector.

It is made of two pieces of rubber. One is a gray rubber gasket which fits directly on the water faucet. The other is of extra quality white rubber, large enough to go over the gray ring and having a shoulder extension at the bottom forming a bumper which prevents breakage when glass or china is accidentally knocked against it. Two pieces of fine-meshed wire fabric are inserted over the opening between the two pieces of rubber and not only prevent water from splashing as it flows from the faucet, but serve to filter and purify it as it flows through them.—M. J. Geraty, 180 North Dearborn street, Chicago, Illinois.



"PERFECTION" ANTI-SPLASHER AND DISH PROTECTOR

A HOLLOW EXPANSIBLE BOTTLE STOPPER

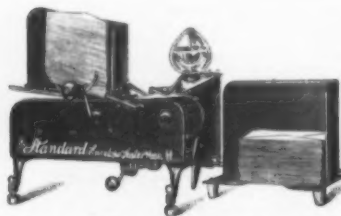


AMERICAN BOTTLE STOPPER

A distinctly American rubber product which has been well received in foreign countries also, is the American bottle stopper, which effects an instantaneous seal in bottles having various sizes and shapes, a function not shared by any other stopper. A push pin of nickel is located centrally in the red rubber stopper so that when the stopper is inserted in the neck of the bottle the pressure on the pin elongates the rubber. When this pressure is released the rubber expands, closing the bottle tightly. Pressing down on the pin reverses the action and permits the stopper to be withdrawn without effort. When in use the stopper hermetically seals the bottle and it is therefore especially adapted for containers of charged liquids and remedies composed of evaporative ingredients.—G. A. Kimber, 2041-2043 North Cicero avenue, Chicago, Illinois.

RUBBER IN THE MAILING MACHINE

Mailing machines are considered a necessity in many large offices and their practicability is universally recognized. The "Standard" envelope sealer has many new features not found on other machines. Among the rubber parts is the indestructible moistening roller which is partly submerged in water as long as the automatic filler-bottle contains water. This filler-bottle has a rubber valve to regulate the amount of water supplied to the roller. The letters are fed singly from the feed hopper by means of a rubber stripper onto the rubber belt which carries them under the moistening roller, and thence to the sealing hopper. This rubber feed belt deserves special mention, as it is made from the best rubber and its wide feeding surface insures long life and positive action. It is instantly removable without dis-



"STANDARD" ENVELOPE SEALER, MODEL H

turbing a single screw. The "Standard" envelope sealer is made in different models with both hand and motor drive.—Standard Envelope Sealer Manufacturing Co., Everett, Massachusetts.

KNIFE SHARPENER PROTECTED BY RUBBER

A novel protective use of rubber is made in the "Kantbreak" knife sharpener, a household utensil made of a special mixture of corundum and alundum. It is reinforced by a steel rod running through the entire length, with a rubber tip at both ends and rubber mounting around the handle where it might come in



"KANTBREAK" KNIFE SHARPENER

contact with a hard surface if accidentally dropped. The "Kantbreak" knife sharpener puts a butcher's edge on a kitchen knife in a few strokes.—Pike Manufacturing Co., Pike, New Hampshire.

A SIX-SIDED RUBBER PENCIL TIP

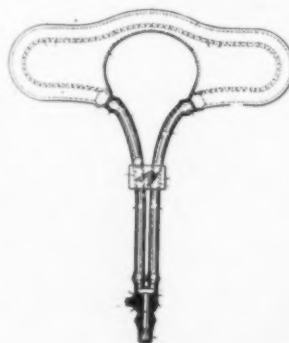
Owing to the easy adjustability of the rubber tip upon the pencil, it has become an article of general popularity within recent times. A six-sided soft rubber eraser called the "Ruby" pencil tip has recently been put upon the market by a well-known manufacturer of drawing pencils, etc. It is made of the finest quality compound and manufactured to last, so that hardening with age has been reduced to a minimum. The sharp sides enable the user to erase thin lines without marring the rest of the text, and the flat sides erase large areas without smudging, thus lending a double practicability to the article.—Eberhard Faber Co., 37 Greenpoint avenue, Brooklyn, New York.



"RUBY" PENCIL TIP

A SHOWER BATH WITHOUT WETTING THE HAIR

A shower-bathing apparatus now being sold permits a satisfactory shower bath to be taken without wetting the hair. It is called the "Simplex" and is portable and designed as an attachment to the double faucet of the ordinary bath tub. A shield of red rubber formed to fit around the neck and over the shoulders of the bather has perforated rubber tubing around the entire outer edge. This tubing below the shield in front is unperforated and the two ends pass through a perforated slide of sponge rubber by which the device is adjusted on the person. Below this slide the two ends of the tubing join in one and at the juncture point is placed a rubber valve which can be manipulated by the



"SIMPLEX" SHOWER-BATH SPRAY

wearer to regulate the flow of water without bending down to the faucet. At the end of the single tube, which is about five feet long, is a "Fitsal" connector for the bath-tub double faucet. This connector was illustrated in our issue of October 1, 1918, and has a chain attachment to prevent it from being forced off the faucet by water pressure.

The "Simplex" shower-bath spray device is made in medium and large sizes, of a good quality of soft, velvety red rubber, no metal touching the body. It is covered by United States patent No. 1,318,172, to Henry W. Patrick, Mansfield, Ohio.—The Simplex Shower Bath Co., Mansfield, Ohio; Stanley-Mateer Co., Inc., 350 Broadway, New York City representative.

THE "MARQUETTE" TIRE TOOL

Another convenience to the motorist is the Marquette tire-tool, a handy manipulator with a grip "like a giant's hand." It is said to be to a tire what a screw-driver is to a screw—not an accessory, but a necessity. The clever construction of this simple tool utilizes leverage so that it takes tires off and rolls them on rapidly. It is guaranteed by the maker never to injure tires.—The Marquette Manufacturing Co., Inc., St. Paul, Minnesota.



THE QUICK-ACTION MARQUETTE TIRE TOOL

AN ELECTRICAL PNEUMONIA JACKET

Modern treatment of pneumonia and lung congestions prescribes the use of the pneumonia jacket. An improved form is the "Vit-O-Net" pneumonia jacket, which is an evolution of this treatment that, the maker claims, has won the approval and endorsement of physicians who have used it. It is lined with rubberized cloth and is placed next to the body of the patient. It contains over 200 feet of a specially constructed, non-corrosive wire and it utilizes connection with an ordinary electric light socket to attain a warmth of from 110 to 130 degrees, according to conditions. The warmth is uniform around the entire thorax and is believed to dissolve and liquefy the congestive secretions in the lungs and to help to neutralize the waste, thus aiding nature to add to the patient's reserve strength.—The Vitonet Corporation, 23 Flatbush avenue, Brooklyn, New York.



"VIT-O-NET" PNEUMONIA JACKET

BILLIARD CUE WITH VULCANITE BUTT

Hard rubber finds an acceptable use in the billiard cue made with highly polished black or mottled vulcanite butt and a maple shaft. The cue is fitted with an ivory tip and an ivory joint



JOINTED BILLIARD CUE WITH VULCANITE BUTT

effects connection between shaft and butt. A special feature of the vulcanite butt is that it is not affected by moisture from the hands, as it does not stain or discolor. It cannot warp or crack in use, is perfectly smooth, and in the opinion of some experts a delicate balance can be more easily attained by using a cue with a vulcanite butt.—The Brunswick-Balke-Collender Co., 623-633 South Wabash avenue, Chicago, Illinois.

A PUNCTURELESS CUSHION TIRE FILLER

A relief from tire troubles is of interest to every motorist, and this is accomplished by the use of "Alastic" tire cushions, the maker asserts. These punctureless tire cushions are made of a

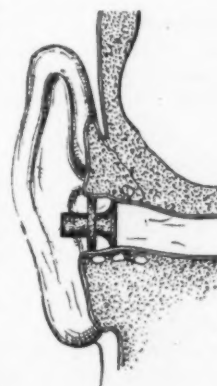


"ALASTIC" TIRE CUSHION

resilient composition molded in various sizes to fill the tire completely and eliminate air and inner tubes. The maker also claims the "Alastic" tire cushion is not affected by heat or cold, rides like air, will stand up round as long as properly confined in the tire and is transferable from one tire to another as the tires wear out.—Alastic Tire Cushion Co., 1419-1421 Locust street, St. Louis, Missouri.

PROTECTS THE EAR DRUM

A protective device of soft rubber to be placed in the ears when bathing is called the "Gem" ear drum protector. This invention is scientifically made to keep out water and other foreign substances and obviate pressure while not interfering with the function of hearing. It is claimed that they can be worn with perfect comfort, are easily inserted and removed, and will not fall out owing to the soft rubber disks clinging to the ear cavity. They prevent injury to the ear drums from high diving and are much preferable to cotton placed in the ears for protection.—United States patent No. 1,355,276, F. A. Schultz; Deodorol Co., distributor, Hasbrouck Heights, New Jersey.



"GEM" EAR DRUM PROTECTOR

TO CUSHION VEHICLE SEATS

A spring specially suited for use on automobiles, motorcycles, motor trucks, bicycles, etc., has been patented under the name of the Seibel air spring. It is claimed to eliminate nearly all the shocks transmitted by all-metal springs and to greatly enhance the pleasure of riding in any vehicle on which it is used. The shock absorbing principle utilized in pneumatic tires is here adapted to cushion vehicle seats.

The Seibel air spring consists of a metallic casing mounted on a single curved metal arm above a dome-shaped air adjuster.



APPLICATION OF SEIBEL AIR SPRINGS

A flexible casing with inner tube and check valve depends from the metallic casing, enclosing an air chamber which cushions the seat and absorbs all shocks by pressing against the air adjuster.

The illustration shows the air springs in use on a motorcycle with side car, and their position beneath the seats is clearly seen. A motorcycle so equipped is no longer subject to objectionable and unhealthful vibrations, shocks and jolts. The elasticity desired is entirely under the control of the operator.—Seibel Air Spring Co., 785 Market street, San Francisco, California.

THE "JON-CON" TIRE PROTECTOR

A new tire protector combines the merits of being easily applied or removed, does not heat in service and successfully reinforces the tire carcass. The protector is made in one continuous molded piece of firm and elastic rubber with a central reinforcing ply of frictioned duck to render it proof against blow-outs in case of minor casing cuts.

The protector is particularly effective against piercing by nails. These naturally pass through the tire tread; meeting the yielding protector they do not pass through, but are bent harmlessly parallel to the road surface by the travel of the wheel.—The Jon-Con Tire Protector Co., 2124 North 15th street, Philadelphia, Pennsylvania.



"JON-CON" TIRE PROTECTOR

AN INFLATABLE AUTOMOBILE BACK CUSHION

Among the instruments of comfort for motorists is an automobile back air cushion that, according to the claims of the maker, "makes the Ford ride like a Packard." Its use lessens fatigue and makes it impossible to feel vibration, jar or jolt in the shoulders or small of the back. The cushion is shaped to fit at the back of either front or rear seats, and has a pneumatic cushion inside. The outer covering is of imitation leather, corduroy, or any material desired, to harmonize with the upholstery of the car.—Metropolitan Air Goods Co., Athol, Massachusetts.

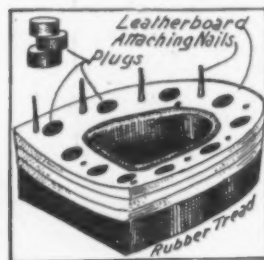


PNEUMATIC AUTOMOBILE BACK CUSHION

RUBBER AND LEATHERBOARD HEEL

In an attempt to overcome the difficulty in satisfactorily attaching the ordinary rubber half-heel, a Massachusetts man has invented a heel made of rubber and leather board, for which he claims distinct advantages.

The upper part of the heel is of layers of leatherboard and the lower part of rubber. These are molded together, forming a positive union between the base and tread, as well as effectually waterproofing the leatherboard. The edges of the leatherboard are then painted the same color as the rubber.



THE CONANT HEEL

On the tread face of the heel is the trade mark, "American Main Spring," and the representation of a frog, together with small depressions for the insertion of the nails to fasten the heel to the shoe. No washers are used in this heel, but on the opposite face, alternating with the places around the edge where the nails will

come through the leatherboard, appear small round rubber spots. These are rubber dowels that project from the rubber part of the heel, extending upward through round holes in the leatherboard. Also, around the central suction cup of the heel, which is 1/4-inch deep, rise rubber walls as a suitable protector inside the leatherboard. Inside the vacuum cup is the name of the inventor of the heel, and the notice, "Patent pending."—Leon Conant, 7 Water street, Boston, Massachusetts.

RUBBER AIDS WHEN AWHEEL

Of British manufacture are "John Bull" knee grips and cushion grips for use of motor-cyclists. The knee grips are made with an outer shell of rubber of special design, enclosing air, held in shape by a flat plate inserted in the back. A circular projection of rubber inside the shell prevents collapse under pressure from the knees. The knee grip is in reality a pneumatic



"JOHN BULL" KNEE GRIPS

cap for the knees, a single stout strap securing both grips to the tank.

"John Bull" hand grips are made of resilient rubber with molded air chambers, in sizes for 3/8-inch and one-inch bars, with open ends for inverted levers and closed ends for outside levers. These are said to give relief from aching shoulders, wrists, or hands due to excessive vibration. Both the knee grips and the hand grips are made by the same manufacturer.—The Leicester Rubber Co., Limited, Post Office Place, Leicester, England.



"JOHN BULL" CUSHION GRIPS

THE MORAND CUSHION WHEEL

The cushion wheel for motor trucks is apparently under continuous development. An improved form of one previously noted is the latest Morand cushion wheel shown in the illustration. These wheels are built to standard S. A. E. specifications for



MORAND CUSHION WHEEL

both single and dual pressed-on type solid tires only and are claimed to be equally serviceable for light or heavy duty trucks. The inner molded rubber cushion is shown, containing rectangular cavities which afford space for the rubber to be displaced under compression. The cushion, with a rubber gasket on each side, is bolted between steel channel rims and interposed between the felloe of the wood

wheel and the solid tire base. It can neither creep nor climb. The wheel travels without side swaying, which permits greater speed with perfect safety to the truck and its load.—Morand Cushion Wheel Co., 800-902 South May street, Chicago, Illinois.

HOLIDAY GREETINGS, CALENDARS, SOUVENIRS

AGAIN the holiday season has brought to THE INDIA RUBBER WORLD the greetings and kind wishes of the rubber and allied industries. We take this opportunity to acknowledge these courtesies and to assure our friends of our cordial and continued interest in them and their varied activities.

CARDS

W. H. Salisbury & Co., Inc., Chicago, Illinois, manufacturer and dealer in rubber products, sends to the trade, on a card bearing its well-known red and green trade mark, the season's greetings and best wishes for 1921.

The Spreckels "Savage" Tire Co., San Diego, California, has sent out a holiday card bearing the picture of a very young Indian chief and greetings from "Little Heap" and his people.

The Chicago Rubber Clothing Co., Chicago, Illinois, sends a holly-decked card wishing a merry Christmas and a happy New Year to all its friends.

The Oak Rubber Co., Ravenna, Ohio, has sent to the valued members of its large circle of business friends a card bearing wishes for success in the New Year.

The Dunlop Tire & Rubber Co., Limited, Toronto, Canada, has sent a cheerful card bearing the representation in gold of one of its tires with a sprig of holly in the center, and the pleasant and appropriate greeting, "May You Travel on the Circle of Prosperity During 1921."

The Mason Tire & Rubber Co., Kent, Ohio, has distributed an art hanger on which a very attractive girl, the product of Haskell Coffin's gifted brush, invites the beholder to ride with her on Mason tires.

Charles E. Wood, 287 Broadway, New York City, crude rubber broker, is a business man who realizes that his biggest asset is the good will of his customers and business acquaintances, and who is not afraid to tell them so. A handsome engraved card announces this pleasant fact, together with other friendly statements.

A strikingly colored poster representation of "Christmas on the Portage Path," showing a solitary woodsman and two Indians at a twilight camp in the forest, decorates the folder which carries the holiday wishes of the Portage Tire & Rubber Co., Akron, Ohio.

Lee Tire & Rubber Co., Conshohocken, Pennsylvania, sends a tastefully engraved greeting card surmounted by a traditional Christmas scene of the Wise Men following the Star.

A holly-decked, gold-bordered folder with the cover showing a representation of a snow-covered, brightly lighted factory under a star-filled sky, bears best holiday wishes to the trade from The Black & Decker Manufacturing Co., Towson Heights, Baltimore, Maryland, maker of special machinery.

Compliments of the season are fittingly conveyed by an engraved card from The J. H. Day Co., Cincinnati, Ohio, manufacturer of rubber machinery, wishing to all its friends a merry Christmas and a Happy New Year, 1920-1921.

CALENDARS

A set of useful calendar blotters, one for each month, bearing an appropriate verse from some famous poem and decorated with a colored reproduction of a painting illustrating the poetical selection, is a holiday remembrance of E. H. Clapp Rubber Co., Boston, Massachusetts, rubber reclaimer.

A painting by Zula Kenyon, "The Land of Laughing Water," showing an idyllic scene in the days when Indians were the only inhabitants of the West, adorns the panel calendar issued by The Oak Rubber Co., Ravenna, Ohio, manufacturer of toy balloons.

A very colorful painting by Emilio Vasarri, "In the Days of the Caesars," is reproduced on the wall calendar presented by Elmer E. Bast, Chicago, Illinois, manager of The Acme Belting Co. and of the United & Globe Rubber Co. It shows a group

of Roman ladies amusing themselves at games in the peristyle of a nobleman's palace.

A panel calendar with the picture of an extremely pretty girl is the gift of L. J. Muttly Co., 175 Congress street, Boston, Massachusetts, maker of automobile top fabrics. It does not need the caption to tell that this young person is "Sweet Sixteen."

The Rubber Regenerating Co., Trafford Park, Manchester, England, sends its greetings all the way across the Atlantic in the form of a wall calendar, on which the months of the year surround a pad of large clearly numbered leaves with the date of each consecutive day, intended to be detached daily. The calendar is decorated with a charmingly soft-colored reproduction of a painting by F. Gresley of historic "Haddon Hall" and its picturesque surroundings.

A handy desk memorandum calendar refill is the thoughtful remembrance of the New Jersey Rubber Co., Lambertville, New Jersey, reclaimer of rubber.

Lavelle Rubber Co., 413-421 N. Franklin street, Chicago, Illinois, manufacturer of mechanical rubber goods, has issued a very practical wall calendar with large figures, each leaf displaying the current month centered, with the past and next following months at top and bottom, respectively.

A painting of the Indian maiden Minnehaha, seated by a moonlit forest stream, is shown on the large-size calendar issued by the Pioneer Asphalt Co., Laurenceville, Illinois, maker of mineral rubber. The background of the calendar represents an Indian blanket with gay-colored, characteristic designs breaking the soft gray of the fabric.

A clear-type, large size wall calendar with leaves for every month and all holidays printed in red, is sent by The Schilling Press, 137-139 East 25th street, New York City, "printers of quality."

The General Electric Co., Schenectady, New York, has brought out a striking large three-color calendar, each leaf showing a photograph of some different phase of the application of electrical energy to modern industry. The surrounding decorations are in poster effect and show sources of electricity, electrical machinery in process of manufacture, electrical apparatus in the home, in the office and on land and sea.

F. R. Henderson & Co., New York City, crude rubber importer, has thoughtfully sent a refill for the convenient leather desk calendar with which that firm presented the trade last year.

From Lockwood, Greene & Co., 60 Federal street, Boston, Massachusetts, comes a large calendar printed in sepia ink on ivory paper, illustrated by photographs of twelve model factories constructed by this engineering firm for various companies throughout the United States, including several rubber goods manufacturers.

The 1921 addition to the series of calendars which the Monatiquot Rubber Works Co., South Braintree, Massachusetts, has issued for the last several years, bears the portrait of Chief Wampatuck. The calendar is large size, printed in brown ink on sepia paper, and the stern profile of the Indian chief in war bonnet strikes a distinctly decorative note.

A combination of calendar and catalog is the souvenir of F. E. Myers & Brother, Ashland, Ohio, manufacturer of pumps and special machinery. A large wall panel, topped with a colored picture, bears a calendar pad surrounded by pictures of various pumps, each numbered in red with its style number for ready reference.

A handsome polished brass easel desk calendar has been distributed by the Allen Tire & Rubber Co., Allentown, Pennsylvania, with a return post card entitling the signer to a 1922 refill at the end of the year. The pad is small, but clearly numbered, with holidays in shaded type, and shows the moon's phases.

The J. H. Stedman Co., scrap rubber merchants, South Braintree, Massachusetts, has sent out a calendar bearing the fifteenth

of a series of old New England scenes. The subject on the 1921 calendar is the old Town Mill, Nantucket, Massachusetts, which is the principal objective of the many tourists to that island.

The North British Rubber Co., Limited, Edinburgh, Scotland, has issued a substantial large-size wall calendar, with daily slips, showing a rocky headland surmounted by a medieval castle silhouetted against the evening sky.

SOUVENIRS

The Niagara Sprayer Co., Middleport, New York, manufacturer of rubber sulphur, has presented its friends with a very convenient miniature pocket almanac and notebook, bound in red morocco, containing the holidays and holy days of the year, the moon's phases and various astronomical data, with oiled leaves for carrying stamps and blank leaves for inscribing the few facts one wishes to carry with him at all times.

John Royle & Sons, Paterson, New Jersey, maker of special rubber machinery, sends "a friendly little book of empty leaves"—a diary for 1921—which contains besides the blank leaves some matter of interest to the trade and maps and tables worth frequent reference.

H. Muehlstein & Co., Third avenue and Harlem River, New York City, dealer in scrap rubber, sends a leather-bound loose-leaf notebook, of vest pocket size, stamped with the recipient's name in gold lettering.

An attractive and useful sole-leather wallet, fastening with two snaps, is the Christmas souvenir to friends in the trade of the Somerset Rubber Reclaiming Co. of New Brunswick, New Jersey.

E. W. Clapp Rubber Co., rubber reclaimers, 49 Federal street, Boston, Massachusetts, distributed a handsome and useful Christmas remembrance to the trade in the form of a gold-filled automatic pencil.

THE EDITOR'S BOOK TABLE

"YEARBOOK OF THE NETHERLANDS EAST INDIES, EDITION 1920." Compiled by the Sub-Department of Commerce of the Department of Agriculture, Industry and Commerce at Buitenzorg, Java. Albrecht & Co., Weltevreden. Cloth, 276 + 60 pages, 7 x 10 1/4 inches.

THE NETHERLANDS EAST INDIES YEARBOOK DIFFERS CONSIDERABLY from the year-books published in other countries, which often contain chiefly statistical material. The main object of the edition of 1920 is to give the world public a general idea of the conditions prevailing in the Dutch East Indian colony and of the results achieved by Holland as a colonial power. Consequently much that was included in the first edition, published in 1916, has been omitted: Subjects generally considered include: Location, and Topography; Government; Health Regulations; Agriculture, including Forestry, which covers rubber planting; Commerce, etc. It is the intention of the department to treat various subjects more in detail in succeeding year-books, so that in the course of time a set of year-books will contain a more complete representation of several important branches of service. The edition is published in Dutch and English. It is an imposing volume, beautifully illustrated with two-color half-tones from photographs taken in the islands and contains many useful maps and graphs.

NEDERLANDSCH-INDISCH RUBBERJAARBOEK (NETHERLANDS East Indies India Rubber Year-Book). Fourth edition. Compiled by K. Goelst. Nederlandsch-Indisch Rubbertijdschrift, Batavia, Java. Card-board, 244 pages.

Owing to the increased expense of printing, paper, etc., this little book has been somewhat modified and appears in stiff board covers, instead of the green cloth binding used in the three former editions.

As before, the contents cover the doings of the past year (in this case 1919), as far as concerns rubber associations and departments of agriculture, both without and within the Dutch possessions in the East. There are reports of the activities of experiment stations throughout the Netherlands East Indies, valu-

able statistics of the number and extent of estates, exports from the various Java and Sumatra districts, trade and planting notes, rules of the local planters' unions. Among the articles included are: "Coagulants," by Dr. O. de Vries; "Spots on Sheets," by J. C. Hartjens, and "Spontaneous Coagulation," by Dr. O. de Vries and W. Spoon. A review of rubber diseases during 1919, lists of definitions and conversion tables of weights, measures, prices are also included.

NOMINATIEVE STATISTIEK DER RUBBERONDERNEMINGEN IN Ned.-Indië (Statistics of Rubber Estates in Netherland Indies) 1920. Compiled by K. Goelst. Het Ned.-Ind. Rubbertijdschrift, Batavia, Java. Stiff board covers, 67 pages.

Similar statistics had been published by the Netherlands East Indies Association for the rubber trade, but after having published data for 1917, the association stopped this work. Now the publishers of the *Nederlandsch-Indisch tijdschrift* have taken over the publication of a similar little book and intend to publish revised editions every year.

The appearance of the book has been greatly improved and pains have been taken to get as much and as accurate information as possible. Altogether 576 estates in the Netherlands East Indies, covering an area of 486,149 bouws (1,754 acres equals one bouw) and having had an estimated crop of 71,067,760 kilos during 1920, are treated. First come the Javanese estates grouped in alphabetical order under the various residencies. The districts in Sumatra, then Borneo and Celebes follow. Next to the name of each estate are the name of the manager, address, total area, area planted to Hevea, area planted to Ficus, area in bearing (all in bouws), output of 1918, output of 1919, estimated output of 1920 (in kilos), dividend for 1917, dividend for 1918, capital, proprietor and attorney in the Netherlands East Indies. As all this data is given for each estate in one compact paragraph with no special indication of its meaning except a figure, a loose card with the explanation of these figures is added with each copy of the book.

RECOMMENDED PLAN OF COST ACCOUNTING CONTROL FOR the Members of the Rubber Producers' Division of The Rubber Association of America, Inc. Cooley & Marvin Co., Boston, Massachusetts. Paper, 6 by 9 inches, 29 pages. Graphs and diagrams.

A very practical and comprehensive plan of cost accounting applicable to plants engaged in proofing of cloth, whether devoted wholly or partially to such work, is graphically set forth in this timely contribution to the literature of the rubber industry. It is the aim of the authors to correct the demoralizing effect of the haphazard pricing of products due to a lack of proper knowledge or to an over-eagerness of many manufacturers to get business. Even a casual glance at the method presented will reveal many important factors of cost that lie between gross sales and net profits. Particularly serviceable is the formula showing in detail the successive stages of cost accumulation, and the mode of analyzing and recording each item of expense. Especially valuable, too, are the charts for ledger accounts, plan of cost control, and the forms of factory order cost sheets.

PROCEEDINGS OF THE TWENTY-THIRD ANNUAL MEETING OF the American Society for Testing Materials, Vol. XX, Parts I and II, 1920. Published by American Society for Testing Materials, Philadelphia, Pennsylvania. Part I, 848 pages; Part II, 511 pages. Paper, 6 by 9 inches.

Part I comprises committee reports on various classifications of materials followed by numerous tentative and revised specifications on testing ferrous and non-ferrous metals, cement, lime, gypsum and clay products, and miscellaneous materials. Among the reports and specifications of special rubber interest are the following: Committee D-11 on Rubber Products; Committee D-13 on Textile Materials with appendices referring to factors affecting the breaking strength of cotton fabrics and the accuracy of testing machines used for that purpose; tentative specifications for Insulated Wire and Cable (30 per cent Hevea rubber), and

Adhesive Tape; Tentative Tests for Molded Insulating Materials; Tentative Methods for Testing Textiles; Standard Specifications for 2½-inch Cotton Rubber Lined Fire Hose for Private Department Use, 2½, 3 and 3½ inch Double Jacketed Cotton Rubber-Lined Fire Hose for Public Fire Department Use.

Part II comprises technical papers relating to metals, cements, road materials, etc., followed by articles on testing apparatus and methods of testing. The only technical paper on rubber products is that by J. M. Bierer, Construction of Steam Hose, which was published in THE INDIA RUBBER WORLD, August, 1920, page 724.

NEW TRADE PUBLICATIONS

A REVISED AND ENLARGED EDITION of date sheets, edited by A. A. Somerville, for the loose-leaf book distributed by R. T. Vanderbilt Co., 50 East 42nd street, New York, has recently been issued. The data includes 34 pages of notes and tables on technical matters relating to crude rubber compounding, curing, costing, fabrics, and a variety of useful conversion tables of temperature weights and measures, etc. Additional sheets are devoted to the compounding materials in which the Vanderbilt company specializes.

COLONEL SAMUEL P. COLT, CHAIRMAN OF THE UNITED STATES Rubber Co., in a review of the rubber industry, predicts that there will be more tires consumed in 1921 than in 1920, or in any previous year in the history of the world. Could such an optimistic statement come from a more reliable and conservative source?

THE APSLEY RUBBER CO., HUDSON, MASSACHUSETTS, HAS issued its new price-lists of rubber boots and shoes, including its three regular and Middlesex brands, and of Apsley canvas footwear. The lists are dated January 1, 1921, and are subject to change without notice. Like the new lists of other firms the reductions average 10 per cent or more.

THE B. F. GOODRICH CO., AKRON, OHIO, ON THE OCCASION OF its fiftieth anniversary, has issued a four-page folder bearing a personal inspirational message from B. G. Work, its president, to the friends and customers of the company.

"WIRES AND CABLES," PUBLISHED BY THE GENERAL ELECTRIC Co., Schenectady, New York, groups in one binding five bulletins dealing with wires and cables, one of which relates to conductors insulated with rubber. Choice of cables for various kinds of service is considered, together with the characteristics and construction features of each type of product for the various classes. There are also many tables of capacity, test voltages, dimensions and classifications of cables.

THE DECEMBER NUMBER OF "The Osborn Bulletin" PUBLISHED periodically by The Osborn Manufacturing Co., Cleveland, Ohio, contained an optimistic article based on sound facts, entitled "How's Business?" by R. W. Wheeler, sales manager of the brush division.

"FREE AIR," A MONTHLY MAGAZINE FOR TIRE DEALERS, PUBLISHED by The Delion Tire & Rubber Co., Baltimore, Maryland, has made its initial appearance, and creates a favorable impression. It is a snappy little 16-page booklet, printed in two colors, and will be sent gratis to any tire dealer mailing his request to the publishers.

"The Michigan Tire News," VOL. I, No. 1, HAS BEEN PUBLISHED by the Wildman Rubber Co., Bay City, Michigan, to serve as a bulletin to the stockholders of the company and to acquaint the public generally with the possibilities of investment in the rubber industry. It is a well-printed and illustrated four-page bulletin, 11 by 16 inches.

A VERY COMPLETE CATALOG HAS BEEN ISSUED BY A. KLIPSTEIN & Co., 644-652 Greenwich street, New York City, importers and exporters of chemicals, colors, oils, etc., listing the various commodities under class heads. For the convenience of buyers the original packing and approximate gross weights of the articles have also been listed. Prices have been omitted, owing to their extreme fluctuations. A feature of the catalog is the separate classification of specialties under the industry in which they are used. Under the head of the rubber industry are enumerated various accelerators, acids, alkalis, colors, compounding ingredients, gums, oils, solvents, vulcanizing ingredients and waxes.

"COTTON AND COTTON MANUFACTURE" IS THE TITLE OF A BOOKLET issued by The First National Bank of Boston to be a companion to the booklet, "Wool and Wool Manufacture," recently distributed by them. It is a brief analysis for the layman and explains all the details of the industry, but untechnically and in an easily readable style. Beginning with the history, distribution and cultivation of cotton, the book describes the selling methods and grading of the staple, the process of manufacture, from the receipt of the raw cotton at the mills to its delivery as finished goods, and finally the position of the United States in the industry is discussed. The book is the work of a member of the staff of the bank and is profusely illustrated from photographs showing distinctly many of the intricate processes of manufacture. Copies may be obtained upon application to the First National Bank of Boston, Commercial Service Department.

"BANK AND PUBLIC HOLIDAYS THROUGHOUT THE WORLD" (1921), is the useful publication of the Guaranty Trust Co., New York City. From its convenient and accurate tabulations it will be found that if some indolent soul of cosmopolitan bent decided to celebrate all the holidays of all the nations of the world, including Sundays, he would allow himself the slender margin of sixty-odd working days in which to earn his bread and butter. What will happen to the workaday world when new holidays commemorating events in the world war are allotted and celebrated is a matter of conjecture. However, the value of a compilation of holidays is inestimable to firms doing international business, especially if banks are closed on these occasions.

"SILVERTOWN" FAN BELT

Fan belts for motor cars have become an indispensable accessory, as motorists are attaching more and more importance to this item of equipment. The average owner is aware of the importance of proper engine cooling and knows the danger of a belt ceasing to function in a place where it could not be readily repaired.

Efficient and reliable is the "Silvertown" cord fan belt, made of cotton cords impregnated with rubber solution and surrounded by a rubber cushion. This construction has just the proper "give," but grips firmly and is said to withstand the hardest drives. The "Silvertown" fan belt is made in both "V" and "flat" styles for use on different types of motors.—The B. F. Goodrich Co., Akron, Ohio.

"COPPER QUEEN" BELTING FOR INDUSTRIAL USE

A friction belt that has a good reputation in the industrial fields of the world is the "Copper Queen" duck belting with red friction surface. It is specially adapted to general transmission work of a severe nature, such as saw mills, reduction plants, paper mills and the like. The duck employed in its manufacture possesses flexibility combined with strength and the heavy tenacious friction is compounded primarily for endurance. "Copper Queen" belting is made in sizes 2 to 12-ply, from 1 to 60 inches wide and can be obtained in special widths and plies to suit extraordinary requirements.—Pioneer Rubber Mills, San Francisco, California.

The National Automobile Show

THE TWENTY-FIRST ANNUAL NATIONAL AUTOMOBILE SHOW, under the auspices of the National Automobile Chamber of Commerce, was held in New York City, January 8 to 15, 1921. The exhibits fully occupied four floors of the Central Square Building, formerly known as Grand Central Palace. Eighty-eight makes of cars were shown, while the exhibitors of automobile accessories numbered 231.

The popular interest in the exhibition was evidenced by the continuous throngs that viewed the exhibits daily. The spirit of the show was in accord with that of the leading national authorities in automobile matters, by whom the prediction is made that there will soon develop the most gigantic building program ever known in the history of any nation. Reasons for this hopeful outlook are found in the pressing need for public works neglected for three years because of the war's demands, high costs and labor shortage. With the passing of these abnormal conditions the repair and development of industrial, trade and transportation facilities will respond to the urgency of national needs.

AUTOMOBILE REGISTRATION

An idea of the influence of the automobile as a factor in modern social and industrial development may be had by noting the rapidly increasing numbers of motor cars registered in the United States. The official report of passenger cars and trucks registered in this country in 1919 was 7,604,016 and 9,295,252 in 1920, an increase of 22.2 per cent. To maintain the present number of cars in service will require a normal replacement of a million per year, each car being conservatively valued at \$1,000, and, in addition, the unknown, but doubtless large, increase in registration, possibly 22 per cent as of last year. In that event 2,000,000 more cars will be required, a total of 3,000,000 new cars for 1921. These items of car building will require 12,000,000 tires for initial equipment. Spare tires and replacement of worn tires for cars already in use will bring the total estimated demand for tires in 1921 to approximately 35,000,000.

In connection with the show it was noted that designers and makers of cars have endeavored with marked success to simplify the motors and lubricating systems, strengthen the chassis and perfect the driving control. These features are for the benefit of the increasing class of owner-drivers, by adding the elements of dependability, durability, ease of operation and reduction of cost of upkeep.

RUBBER AND MISCELLANEOUS PASSENGER CAR ACCESSORIES

The accessory exhibits occupied all of the fourth floor space and a small proportion of that of the third floor. Something for every motoring need would seem to have been included in the great variety of accessories shown. Those in which rubber formed an essential feature included the product of the following manufacturers.

AUTO PEDAL PAD CO., INC., 318 West 52nd street, New York City. Rives' "Neverslip" auto pedal pads molded in designs for every car. Also Rives' adjustable accelerator pad and heel rest.

AUTOMATIC SAFETY TIRE VALVE CORPORATION, 1753 Broadway, New York City. "Lox-on" air chuck. "Whistler" tire pressure indicator.

BREEZE METAL HOSE & MFG. CO., 248 South street, Newark, New Jersey. Flexible metallic hose.

COFFIELD TIRE PROTECTOR CO., Dayton, Ohio. High grade molded endless protector of rubber for insertion between tube and casing.

EASTERN RUBBER CO., Philadelphia, Pennsylvania. Demonstration of "Magic Rubber Mend" for repair of cuts and punctures in tubes and soft rubber articles generally.

ELGIN RUBBER ACE CO., Elgin, Illinois. "Rubber Ace" inner tires consisting of two annular interlocking sponge rubber members molded to fit and completely fill a tire casing for which very specific claims of practical utility are made.

JON-CON TIRE PROTECTOR CO., 2124 North 15th street, Philadelphia, Pennsylvania. "Jon-Con" tire protector, and endless molded rubber band reinforced by a centrally inserted duck ply.

JAMES MARTIN, 134 West 52nd street, New York City. Martin cord tires, ribbed and non-skid.

MARTIN TIRE CORPORATION, 903 Sixth avenue, New York City. Cord and fabric tires, red and gray inner tubes.

RAWHIDE PRODUCTS CORPORATION, INC., 1834 Broadway, New York. "Miracle" blow-out patches, non-puncturable by reason of a ply of raw hide interlaminated with rubberized duck. Also "Miracle" fan belts made non-stretchable by a single central ply of rawhide, the outer plies being of 8-ounce frictioned duck, and a red rubber cover, lightly cured and with edges stitched through and through.

SEWELL CUSHION WHEEL CO., 1300 Gratiot avenue, Detroit, Michigan. Sewell cushion wheel.

WELDO PATCH MANUFACTURING CO., 230 Fifth avenue, New York. Demonstration of the self-welding "Weldo-Patch," applied to mend holes, cuts and tears in inner tubes, rubber shoes, water bottles or other soft rubber goods without cement or vulcanization.

S. S. WHITE DENTAL MANUFACTURING CO., 7 Union Square, New York City. Flexible shafts.

COLLINS PUNCTURE-PROOF TUBE CO., Hackensack, New Jersey. Special red inner tube containing a self-healing puncture fluid.

Interesting displays of motor batteries were those of Electric Storage Battery Co., Allegheny avenue and 19th street, Philadelphia, Pennsylvania; Hartford Battery Manufacturing Co., Milldale, Connecticut; Luthy Storage Battery Co., 1170 Broadway, New York; A. H. Lyons & Co., Girard Building, Philadelphia, Pennsylvania; Paul M. Mako & Co., Inc., 1402-12 Atlantic avenue, Brooklyn, New York; Philadelphia Storage Battery Co., 1789 Broadway, New York; Westinghouse Union Battery Co., Swissvale, Pennsylvania; Willard Storage Battery Co., 246 East 131st street, Cleveland, Ohio; Witherbee Storage Battery Co., Inc., 643 West 43rd street, New York City.

Among the exhibits of accessories not of rubber many were of special interest, such, for example, as the following:

LINK-BELT CO., 202 Hunting Park avenue, Philadelphia, Pennsylvania. Link-Belt silent chain, front end drives.

MORSE CHAIN CO., Ithaca, New York. Morse front end silent chain drives.

SALMON FALLS MANUFACTURING CO., 50 State street, Boston, Massachusetts. Toron-treated tire fabrics and toronized tires. Demonstrations were in progress by means of a Scott testing machine with autographic recording device, showing the value of Toron in uniformly enhancing the holding power of friction on tire-building fabric.

A. SCHRADER'S SON, INC., 783 Atlantic avenue, Brooklyn, New York. Universal tire-valves, dust caps, pressure gages, pump connections, etc.

C. A. SHALER CO., 21 Jefferson street, Waupun, Wisconsin. Vulcanizers and equipment for tire and tube repair. Shaler road lighter headlight lenses.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO., East Pittsburgh, Pennsylvania. Rectigon battery charger; Mazda lamps; automobile wiring systems and small motors for household purposes.

News of the American Rubber Industry

FINANCIAL NOTES

THE FOLLOWING is the condensed balance sheet of The Mason Tire & Rubber Co., Kent, Ohio, as at the close of business October 31, 1920:

ASSETS			
Current:			
Cash balances	\$114,149.33		
Accounts and notes receivable	\$739,186.41		
Less reserves	18,000.00	721,186.41	\$835,335.74
Inventories			
Finished goods at factory and branches	\$1,782,044.87		
Work in process	172,779.01		
Raw material and supplies	670,389.37	2,625,213.25	
Total current assets			\$3,460,548.99
Other assets:			
Miscellaneous investments	\$103,500.00		
Transportation claims	5,683.82	109,183.82	
Fixed Assets:			
Real estate	\$67,500.00		
Buildings	\$1,388,952.27		
Machinery and equipment	1,739,542.36	\$3,128,494.63	
Less reserve for depreciation	182,957.50		
As appraised by American Appraisal Co.	2,945,537.13		
October 31, 1920, at sound market values, dormitories (at cost)	205,000.00	3,218,037.13	
Deferred Charges:			
Miscellaneous deferred and prepaid expenses		160,540.77	
Good will, trade marks, etc.	\$2,211,409.53		
Less capital surplus	935,639.50	1,275,770.03	
			\$8,224,080.74
LIABILITIES AND CAPITAL			
Current:			
Accounts and notes payable	\$834,586.07		
Dividends payable	46,268.00		
Total current liabilities		\$880,854.07	
7% Serial Gold Notes: (Maturing May 1, 1921)		50,000.00	
7% Serial Gold Notes: (Maturing November 1, 1921, to May 1, 1926 inclusive)		650,000.00	
Accrued:			
Accrued taxes and royalties		38,420.02	
Reserve:			
For tire adjustments		20,000.00	
Capital:			
Preferred stock	\$5,458,920.00		
Common stock "A"	500,000.00		
Common stock "B"	383,462.50	\$6,342,382.50	
Payments on capital stock subscriptions	65,048.42	6,407,430.92	
Surplus:			
Auditors' balance November 1, 1919	\$45,671.51		
1919 income tax and other adjustments	32,581.57		
Profit for year	527,669.69		
Less dividends	\$414,834.22	\$605,922.77	
Less adjustments	13,712.82	428,547.04	
		177,375.73	
			\$8,224,080.74

Contingent liability October 31, 1920, on trade acceptances discounted, as verified by correspondence with all banks, was \$155,035.11. Estimated income and profits taxes for year, for which no reserve was set up, approximately, \$75,000.

CLEVELAND STOCK EXCHANGE QUOTATIONS

The following are closing quotations of January 20, supplied by The App-Hillman Co., Second National Building, Akron, Ohio:

	Bid	Asked
American R. & T. Co., com.	45	70
Amazon Rubber Co., The.	45	45
Firestone T. & R., com.	85	90
Firestone T. & R., 6% pfd.	85	90
Firestone T. & R., 7% pfd.	77	80
General T. & R. Co., The, com.	200	250
General T. & R. Co., 7% pfd.	80	85
Goodrich, B. F., Co., The, com.	42	43
Goodrich, B. F., Co., The, pfd.	79	83
Goodrich, B. F., Co., The, 5-yr. 7% notes.	89	90 1/2
Goodyear, T. & R. Co., The, com.	22	23
Goodyear T. & R. Co., The, 7% pfd.	46	47
India T. & R. Co., com.	100	130
India T. & R. Co., 7% pfd.	80	80
Mason T. & R. Co., The, com.	17	20
Mason T. & R. Co., The, 7% pfd.	65	70
Marathon T. & R. Co., com.	4	4

	Bid	Asked
Miller Rubber Co., The, com.	85	90
Miller Rubber Co., The, 8% pfd.	85	88
Mohawk Rubber Co., The.	120	130
Portage Rubber Co., The, com.	23	25
Portage Rubber Co., The, 7% pfd.	40	45
Republic Rubber, com.	1 1/4	1 1/4
Republic Rubber, 7% pfd.	37	37
Republic Rubber, 8% pfd.	18	22
Rubber Products Co., The.	100	100
Star Rubber Co., com.	100	100
Star Rubber Co., 8% pfd.	100	100
Swinehart T. & R., com.	25	40
Swinehart T. & R., 7% pfd.	70	70
Phoenix Rubber Co., com.	20	20
Phoenix Rubber Co., pfd.	90	90
Standard Tire Co., com.	125	125
Standard Tire Co., pfd.	90	90

NEW YORK STOCK EXCHANGE QUOTATIONS

JANUARY 25, 1921			
Ajax Rubber Co., Inc.	37	36 1/4	36 1/4
The Fisk Rubber Co.	14 1/4	14 1/4	14 1/4
The B. F. Goodrich Co.	40 1/4	40 1/4	40 1/4
The B. F. Goodrich Co., pfd.	83	83	83
Kelly-Springfield Tire Co.	47 1/4	46 1/4	47 1/4
Kelly-Springfield Tire Co., pfd.	93	94	94
Keystone T. & R. Co., Inc.	11 1/4	11 1/4	11 1/4
Lee R. & T. Corp.	20	19 1/4	19 1/4
United States Rubber Co.	69 1/4	67 1/4	68 1/4
United States Rubber Co., 1st pfd.	103	103	103

DIVIDENDS DECLARED

Company	Stock	Rate	Payable	Stock of Record
American Wringer Co.	Pfd.	1 1/4 %	Jan. 15	Dec. 31
Canadian Connecticut Cotton Mills, Limited	8% par. pfd.	2% q.	Jan. 1	Dec. 23
Corn Products Refining Co.	Com.	\$1 q.	Jan. 20	Jan. 3
Corn Products Refining Co.	Com.	\$0.50 q.	Jan. 20	Jan. 3
Corn Products Refining Co.	Pfd.	\$1.75 q.	Jan. 15	Jan. 3
Eagle-Fisher Lead Co., The.	Pfd.	1 1/2 % q.	Jan. 15	Jan. 2
Firestone Tire & Rubber Co.	Pfd.	\$1.50 q.	Jan. 15	Jan. 1
Fisk Rubber Co., The.	1st pfd.	1 1/4 % q.	Feb. 1	Jan. 21
Franklin Rubber Co.	Com.	6% an.	Jan. 10	Dec. 31
General Electric Co.	Com.	2% q.	Jan. 15	Dec. 8
General Electric Co.	Com.	2% stk.	Jan. 15	Dec. 8
General Tire & Rubber Co.	Pfd.	1 1/4 % q.	Jan. 1	Dec. 20
Goodrich, B. F., Co., The.	Com.	\$1.50 q.	Feb. 15	Feb. 4
Goodrich, B. F., Co., The.	Pfd.	1 1/4 % q.	Apr. 1	Mar. 22
Goodrich, B. F., Co., The.	Pfd.	1 1/4 % q.	July 1	June 21
Hodgman Rubber Co.	Pfd.	2% q.	Feb. 2	Jan. 15
Hred Rubber Co.	Pfd.	1 1/4 % q.	Feb. 1	Jan. 20
India Tire & Rubber Co., The.	Com.	2% q.	Jan. 3	Jan. 1
India Tire & Rubber Co., The.	Pfd.	1 1/4 % q.	Jan. 3	Jan. 1
Kelly-Springfield Tire Co.	Com.	\$1 q.	Feb. 1	Jan. 14
Kelly-Springfield Tire Co.	Com.	3% stk.	Feb. 1	Jan. 14
Kelly-Springfield Tire Co.	8% pfd.	\$2 q.	Feb. 15	Feb. 1
Lee Rubber & Tire Corporation.	Com.	\$0.50 q.	Mar. 1	Feb. 15
Manufactured Rubber Co., The.	Pfd.	1 1/4 % q.	Jan. 12	Jan. 8
Miller Rubber Co., The.	Com.	\$1 q.	Jan. 20	Jan. 1
Mohawk Rubber Co., The.	Com.	\$1.50	Jan. 1	Jan. 1
New Jersey Zinc Co., The.	Com.	2% q.	Feb. 10	Jan. 31
Philadelphia Insulated Wire Co.	Com.	\$1.50 q.	Jan. 15	Jan. 10
United States Rubber Co.	Com.	2% q.	Jan. 31	Jan. 15
United States Rubber Co.	1st pfd.	2% q.	Jan. 31	Jan. 15
Westinghouse Electric & Manufacturing Co.	Com.	2% (\$1) q.	Jan. 31	Dec. 31
Westinghouse Electric & Manufacturing Co.	Pfd.	2% (\$1) q.	Jan. 15	Dec. 31
Wrigley, Jr., Wm. Co.	Com.	\$0.50 m.	Feb. 1	Jan. 25

NEW INCORPORATIONS

Air Container Co., January 13, 1921 (New Jersey), \$250,000. A. G. Fitzgerald, Boston, Massachusetts; G. G. Tennant, T. M. Kane—both of Jersey City, New Jersey. To manufacture tires.

American Rubber Holding Co., December 17, 1920 (Delaware), \$1,000,000. M. M. Lucey, M. B. Reese, V. P. Lacey—all of Wilmington, Delaware.

Co-operative Rubber & Mfg. Co., January 13, 1921 (Delaware), \$600,000. A. W. Britton, S. B. Howard, R. K. Thistle—all of New York. To manufacture tires.

Gasco Manufacturing Co., September 24, 1920 (Pennsylvania), \$50,000. G. H. Shreiner, president; G. L. Whallen, vice-president; L. R. Whallen, secretary; R. W. Shreiner, treasurer—all of Lancaster, Pennsylvania. To manufacture and sell automotive equipment and accessories.

Gotham Co., Inc., December 20, 1920 (New York), \$100,000. Julius H. and Gustav Cohn, both of 251 West 92nd street, New York City; A. H. Cohn, Larchmont—both in New York. To manufacture rubber goods.

Great Western Rubber & Footwear, Ltd., October 22, 1920 (Canada), \$200,000. D. R. Yates, president; R. W. Wallace, vice-president G. F. Bletcher, secretary and treasurer. Principal office, Lethbridge, Alberta, Canada. To distribute Dunlop tires, accessories and mechanical goods.

Hard Fibre & Insulation Corp., January 21, 1921 (New York), \$50,000. W. E. Dancink, 52 West 76th street; A. N. Sohmer, 237 West 107th street; J. W. Canter, 952 Simpson street—all in New York City.

Kay-Fowler, Inc., October 29, 1920 (Massachusetts), \$25,000. C. Kay, G. F. Merrill, both of Gloucester; L. F. Fowler, Rockland—both in Massachusetts. Principal office, Boston, Massachusetts. To buy and sell leather, rubber and canvas goods.

King Tire Co., Inc., January 11, 1921 (New York), \$50,000. Jos. and Louis Wertheimer, both of 214 West 69th street; P. Turk, 215 West 68th street—both in New York City.

Liberty Airless Tire Corp., January 4, 1921 (Delaware), \$2,000,000. A. J. Kingsbury, L. B. Phillips, D. D. Wharton—all of Dover, Delaware. To manufacture tires and tubes.

Mason & Feldman Mfg. Co., Inc., January 17, 1921 (New York), \$10,000. Jacob and Fannie Mason, I. Feldman—all of 2854 West 24th street, Brooklyn, New York. To manufacture wood and rubber heels.

Norfolk Corp., The, August 28, 1920 (Massachusetts), \$50,000. R. A. Keppler, 427 Grove street, Brooklyn, New York; M. C. Baker, 407 Huntington avenue, Boston; B. W. Flanders, Monponsett; P. N. Fitzpatrick, 210 Malden street, Malden; R. W. Baldwin, 11 Mayo street, Needham—all in Massachusetts. Principal office, Boston, Massachusetts. To manufacture, buy and sell rubber goods.

Raymond Rubber Co., September 9, 1920 (Rhode Island), \$10,000. R. Rodgers, R. S. Wilber, J. A. Bennett—all of Providence, Rhode Island. Principal office, Providence, Rhode Island. To buy, sell and manufacture all kinds of automobile tires, etc.

Rosa Tire Sales Co., Inc., January 21, 1921 (New York), \$10,000. E. Rosa, 2243 Arthur avenue, Bronx; J. B. Finkelstein, H. Lenitz, both of 38 Park Row—both in New York City.

Rubber Process Co., November 16, 1920 (California), \$200,000. H. Hill, R. H. Hubbell, F. H. Evers, H. W. French, W. D. Smith—all of San Francisco, California.

Schlesinger Tire & Supply Co., Inc., January 21, 1921 (New York), \$5,000. C. Mellen, 2150 East 19th street, Brooklyn; R. C. Schlesinger, 835 Riverside Drive; R. S. Lazarowitz, 240 West 35th street, New York City—both in New York. To deal in automobile supplies, etc.

Stedman Products Co., December 16, 1920 (Massachusetts), \$50,000. B. Ayer, W. G. Brooks, both of South Braintree; J. H. Stedman, Cedar street; M. A. Turner, May avenue; A. N. Hunt, 29 Vine street, all of Braintree—both in Massachusetts. To manufacture and deal in rubber goods, etc.

Stokes Asbestos Co., December 20, 1920 (New Jersey), \$1,000,000. William J. B. and Joseph Oliver Stokes, both of Trenton; R. J. Stokes, Princeton—both in New Jersey. Principal office, Hamilton Township, Mercer County, New Jersey. Agent in charge, Robert J. Stokes. To manufacture, buy and sell rubber and asbestos, etc.

Tire Fusing Corp., December 24, 1920 (New York), \$10,000. J. Zito, 3200 Broadway, New York City; D. Klein, 963 Kelly avenue; C. Selnik, 1042 Southern Boulevard, both of Bronx—both in New York. To deal in tires.

Universal Tire Co., January 7, 1921 (Delaware), \$7,500,000. M. M. Lucey, M. B. Reese, L. S. Dorsey—all of Wilmington, Delaware. To manufacture tires, etc.

Virginia-Carolina Rubber Co., Inc., April 28, 1920 (Virginia), \$200,000. R. J. Bell, president; T. Bell, treasurer; C. L. Shackelford, secretary. Principal office, Richmond, Virginia. To manufacture automobile tires and by-products.

PERSONAL MENTION

A. B. Jones, vice-president of The B. F. Goodrich Co., has resigned from the executive board, but will continue as an official of the company. His resignation was accepted at a meeting of the board of directors held in New York City on January 19, 1921. Mr. Jones recently returned from an eight months' trip abroad, during which he visited the rubber-producing areas at the Straits Settlements, China, Japan, Egypt and practically all European countries. During the world war he was in charge of transportation for the American Red Cross in France.

William C. Potter has been elected chairman of the board of directors of the Guaranty Trust Company of New York, to succeed Alexander J. Hemphill, who died December 28, 1920. Mr. Potter is well known for his mining and metallurgical operations and has been for several years actively connected with the Guggenheim interests. He has also been associated as director with many companies, among them the Continental-Mexican Rubber Co., the Intercontinental Rubber Co., and the Continental Rubber Co. In 1911 he became president of the Intercontinental Rubber Co. Mr. Potter will withdraw from other executive activities and will devote all his time to his new duties as chairman of the board of the Guaranty Trust Company.

F. W. Potts, for several years northwestern district manager for The Republic Rubber Co., with headquarters at Minneapolis, has resigned, effective January 15. No announcement has been made of his future plans.

H. J. Moyer, who has represented Yarnall-Waring Co. and Nelson Valve Co. in the Chicago territory for several years, will in future represent the Yarnall-Waring Co. exclusively in that field, as district manager, with offices at 58 West Washington street, Chicago.

H. H. Clark, of the C. Kenyon Co., Brooklyn, New York, manufacturer of waterproof clothing, tires, etc., was elected president of the Advertising Club of the Brooklyn Chamber of Commerce when it was organized with seventy members on January 12, 1921.

COLONEL COLT PREDICTS PROSPEROUS RUBBER YEAR

Colonel Samuel P. Colt, chairman of the United States Rubber Co., who has exceptional facilities for gauging the currents of general trade, takes issue in a recent review of the rubber industry with those who can see only hard times ahead. "We know from experience," he said, "that the pendulum swings too far in each direction, and I believe that the rubber business along with other lines will gradually reach a healthy plane which will be satisfactory to both producer and consumer."

After pointing out that in no other line were movements of prices and volume of business more mixed in 1920 than in the rubber industry, that with the curtailment of manufacturing in the United States and the inability of Central and Eastern Europe to absorb a normal amount of crude rubber, the price of the latter had dropped within the year from a high of 55 cents a pound to 16½ cents for first crêpe, resulting in a large surplus of crude rubber, which excess was tending to restrict planting, he found, nevertheless, many encouraging conditions.

The capacity of the plants producing rubber footwear was absorbed during 1920 without undue accumulation of stocks; and, with ordinarily favorable weather conditions, Colonel Colt said, the volume of 1921 footwear business is likely to be at least normal. Overstocking with mechanical rubber goods will, he believes, correct itself early this year, and then a good demand will set in. He notices already an improvement, which he is sure will soon expand, in the manufacturing of pneumatic tires, of which there had been over-production, and predicts that more tires will be consumed in 1921 than in 1920. While realizing all the difficulties now handicapping the exporter, he is confident, however, that the selling of American goods in foreign countries will become increasingly easier through the establishment of new levels of exchange, which though far from normal will at least be reasonably steady.

AMERICAN DUNLOP ENTERPRISE HALTED

A letter from the directors of the Dunlop Rubber Co., Limited, to *The Financial Times*, London, states some interesting facts concerning the finances of the American branch of the Dunlop company, the substance of which follows:

"Within the past few weeks the company has been called upon to assume the responsibility of providing the additional finance required to place the American Dunlop company in a position to complete the construction and installation of its factory and to provide sufficient working capital to enable that company to carry out its first year's trading program.

"While the Dunlop Rubber Co. is under no liability to provide this additional finance, the board recognizes that it is in the interests of the company that the American enterprise should be carried on, and in accordance with the statement made at the last meeting of shareholders held on September 10 last, the greater part of the sum of £1,000,000 has been remitted during the last few weeks.

"The directors, however, feel very strongly that the American company should now take steps on its own initiative to provide the further funds required to bring the undertaking to completion, and important negotiations, in which this company is assisting, are now pending for this purpose."

This letter should do much to quiet the wildly exaggerated rumors in connection with the Dunlop rubber and cotton commit-

ments, *The Financial Times* asserts, further stating that the position in respect to these is "nothing of a nature to frighten one." Although the British Dunlop company, as stated in this letter from A. Cunningham, its secretary, is not responsible for the financing of the American undertaking, it is naturally concerned that the good-will of the world-famous name of Dunlop should not be jeopardized, and to that extent the British company cannot afford to be indifferent to the fortunes of its kindred undertaking.

The directors of the Dunlop Tire & Rubber Corporation of America are: Pierre du Pont, chairman of the E. I. du Pont de Nemours Company and of General Motors; Anson W. Burchard, vice-president and director of International General Electric Company, Schenectady, New York; Robert W. Pomeroy, director of the Manufacturers' and Traders' National Bank, Buffalo, New York; J. Westren, managing director of the Dunlop Tire & Rubber Goods Co., Limited, Canada; F. C. Walcott, 120 Broadway, New York; P. D. Saylor, vice-president and general manager; Sir Harry McGowan, K.B.E., chairman of Explosives Trades, Limited, (now Nobel Industries, Limited), Dunlop Rubber Co., etc.; L. M. Bergin, managing director.

Operations at the Buffalo plant being practically suspended the following statement was made by the company on January 12.

"The directors have decided that general conditions in the automobile industry are such that they are justified in slowing down their program until conditions improve. April 1 is the probable date of resumption of activities, although it may be much sooner if the conditions justify."

Approximately \$36,000,000 has been spent by the company since building operations were started a year and a half ago.

MEETING OF RUBBERIZERS AND DYERS OF RAINCOAT FABRICS

A meeting of a group of rubberizers, cloth converters and dyers interested in the manufacture of raincoats was held in New York City on January 5, 1921. The purpose was to discuss the dyeing and finishing of goods intended for rainproof garments and to arrive at an understanding regarding the elimination of those dyestuffs and methods of dyeing which result in the deterioration of the rubber used in proofing after brief aging.

Many raincoat manufacturers have sustained serious losses due to the fact that cottons, silks, cotton mixtures and other fabrics bought from the converters frequently contain metal salts injurious to the rubber coating. Fast-colored goods that are not incompatible with rubber are required by the raincoat manufacturers. This is a chemical problem to be settled by the dyers and dyestuff manufacturers in cooperation with the rubberizers.

The interests of the dyer of cloth are in conflict with those of the rubberizer and, perhaps for the first time, a concerted effort has been made to discuss the questions involved and arrive at practical recommendations to meet the situation. These recommendations are embodied in the following resolutions adopted by those present under the chairmanship of Dr. Wallace P. Cohoes, representing Joseph Bancroft & Son, Wilmington, Delaware.

Copper should not be present in fabrics for rubberizing purposes and in the test if any blue color is obtained from a 10-gram sample after incinerating, and is dissolved in nitric acid, and treated with ammonia, the copper might be considered in excess.

It was decided that chrome can be allowed as an oxide.

Samples tested by leaching out with water should not show presence of chromates or chromium salts.

That a committee representing dyestuff manufacturers, dyers, converters, and rubberizers be appointed to cooperate and make the necessary tests to determine the effect of chromium compound upon rubberizing.

It was decided that manganese be eliminated. Tests for manganese to be as follows: That when a 10-gram sample of cloth is ignited and fused with sodium carbonate, no green coloration should be noted.

It was decided that vanadium should not be used in the dyeing of merchandise for rubberizing.

It was decided that no restriction be placed upon iron pending a series of experiments similar to those for chromium.

It was decided that ether extracts should not show an excess of 2 per cent in the fabrics dyed and finished for rubberizing purposes.

Dr. Cohoes, chairman, appointed the following committee on specifications; E. Montalent, of H. A. Metz Co., representing dye manufacturers; J. F. Warner, of the Bronx Co., representing finishers; Alfred L. Helwitz, of Alfred L. Helwitz & Co., representing converters; Harold D. Mitchell, of the Vulcan Proofing Co., representing rubberizers.

The following were among those present at the conference:

John Bancroft, Jr., D. S. Ashbrook, and Dr. Wallace P. Cohoes representing Joseph Bancroft & Son, dyers and finishers, Wilmington, Delaware; Dr. J. F. Warner, chemist for the Bronx Co., dyers and finishers, New York City; Dr. Lothar E. Weber, rubber chemist, Boston, Massachusetts; Dr. Frederick J. Maywald, rubber chemist, Newark, New Jersey; Dr. Allen Rogers, rubber chemist, Pratt Institute, Brooklyn, New York; Drs. Dano and Mattice of the National Aniline Co., New York City; Messrs. Philip Clarkson and Emil Montalent of H. A. Metz Co., dyestuff manufacturers; A. L. Helwitz of Alfred L. Helwitz & Co., cotton converters.

MOTOR AND ACCESSORY MANUFACTURERS' ASSOCIATION

At the annual meeting of the Motor and Accessory Manufacturers' Association, held at Hotel Biltmore, New York City, January 12, F. C. Glover and H. L. Horning were elected to the board of directors to succeed Christian Gird and E. W. Beach, who have been identified with the Association both as members and directors for many years. L. M. Wainwright and E. H. Broadwell were reelected as directors, their terms having expired this year. The board of directors now includes, besides these members, C. E. Thompson, W. O. Rutherford, G. Brewer Griffin, J. M. McComb, G. W. Yeoman, A. W. Copland, C. H. L. Flinterman, and E. P. Hammond. The following day the board held a meeting for the election of new officers, naming E. H. Broadwell president to succeed Charles E. Thompson, who has served for two years. Mr. Broadwell until this year served as vice-president of the association. Other officers elected were: W. O. Rutherford, first vice-president; A. W. Copland, second vice-president; H. L. Horning, third vice-president. True to a tradition of the association, L. M. Wainwright was reelected treasurer, and G. Brewer Griffin was reelected secretary and assistant treasurer.

The parts and units makers continued last year's departure from precedent by holding a "speechless" banquet and show in the grand ballroom of the Hotel Commodore, January 12, which was attended by approximately 600 men connected with the Association. The entire cast of the Ziegfeld Midnight Frolic was transported from the New Amsterdam Roof to the Hotel Commodore, where the show was presented under automotive auspices, many features being especially arranged to appeal directly to members of the industry.

PNEUMATIC-TIRED TRACTORS

Even the steel tires of tractors are giving way to pneumatic tires. Tractors thus tired are giving excellent service in saw-mills for hauling lumber dollys, moving dump wagons, switching railroad cars at docks, and transporting heavy pieces on skids or rollers; general hauling with regular trailers, and in logging camps where they tow loaded trucks to the main roads. It is claimed that a tractor equipped with pneumatic tires can get better traction, has greater mobility, can be handled with remarkable advantage in plowing and cultivating, and that it can travel faster in pulling a load on rough or even ground.

THE RUBBER TRADE IN THE EAST AND SOUTH

By Our Regular Correspondent
NEW YORK AND EASTERN NOTES

WORK is progressing on the new factory building which the Hudson Tire & Rubber Corporation is erecting at Yonkers, New York, the foundations being already completed. The contract was awarded and the building will be erected under the supervision of the Osborn Engineering Co., Cleveland, Ohio, who designed it. Reinforced concrete construction will be employed and the building will be adapted for extension as business warrants. Machinery of the latest type will be installed to manufacture the Hudson non-skid cord tire, in all sizes, including giants for heavy duty truck service, and the Hudson solid truck tire. Production is expected to start in the Spring.

After forty years of service as manager of the sundries sales department of the American Hard Rubber Co., New York City, Philip H. Campbell has retired. The company has sent out a handsomely engraved card announcing with regret Mr. Campbell's retirement and naming G. Brette Glaenger sales manager of the sundries sales department.

Paramount Rubber Consolidated, Incorporated, Philadelphia, Pennsylvania, will open offices on the twelfth floor of the Cuyler building, 120 West 32d street, New York City, on February 1. The new address will combine the company's New York office and display rooms. Paramount Rubber Consolidated, Incorporated, has a factory at Little Falls, New Jersey, for the manufacture of rubber play balls, solid balls, plain and decorated, and patented molded designs.

Among the thirty-five new members elected to The Merchants' Association by the directors at a recent meeting of the board were: Joseph Chalfin, 80 Washington street, dealer in crude and scrap rubber; and S. A. Pardee, R. & J. Dick Co., Inc., 55 Barclay street, manufacturer of balata belting, both of New York City.

The Kelly-Springfield Tire Co., New York City, has rented for a term of years its new building at 10th avenue and 54th street, originally intended for a storehouse and service station.

The Advance Rubber Co., formerly at 8th avenue between 17th and 18th streets, has removed to its new plant at 21-39 Gardner avenue, Brooklyn, New York, where it is now operating. The company reports orders for tires coming in daily and good business in mechanical lines. The additional space in its new plant will be utilized in manufacturing additional lines of mechanical goods.

The Rouden Manufacturing Co., Inc., 1361 Atlantic avenue, Brooklyn, manufacturer of rubber goods and metal ware, has been declared bankrupt. Ralph K. Jacobs has been appointed receiver.

The Powertown Tire Sales Company, 955 Main street, Buffalo, New York, was incorporated under the laws of Delaware in November, 1920, with a capitalization of \$1,200,000. H. J. Crowder is general manager and the company has a contract with the Powertown Tire Corporation of the same address to handle the entire output of Powertown cord tires. The company has taken over the store of Spencer B. Bedell, Waterbury, Connecticut, who has the exclusive sale of Powertown cord tires in Bristol and Torrington in the same state and in Springfield, Massachusetts.

The British-American Manufacturing Co., Springdale, Connecticut, manufacturer of waterproof textiles and fabrics, has been placed under the receivership of William F. Gillespie and Clinton R. Martin. Suit was brought by the Bankers Trust Company of New York, one of the principal creditors.

PENNSYLVANIA NOTES

A petition in involuntary bankruptcy against the New Castle Rubber Co., New Castle, Pennsylvania, was filed in the United States Court at Pittsburgh, Pennsylvania, December 23, 1920. E. M. Underwood, local referee of the Court, appointed E. W.

Bedel as receiver for the company. Liabilities were reported to be \$4,500,000 and assets \$1,500,000. The New Castle Rubber Co. was originally incorporated for \$500,000 and acquired the property of the New Castle Forge & Bolt Works. The plant was well equipped and did a large business under the management of W. E. Dursten until the slump in the rubber business last summer.

The accompanying photograph of the Allen Tire & Rubber Co.'s new plant at Allentown, Pennsylvania, shows the first and second units which were completed and went into production last month, turning out "Allen" tires and tubes. The company, of which Wilmer Dunbar is president, started building operations in April, 1920, and on January 3, 1921, the plant was in operation—a re-



PLANT OF THE ALLEN TIRE & RUBBER CO., ALLENTOWN, PENNSYLVANIA

markable record under present conditions. The main building is 260 feet long and 60 feet wide, two stories in height, and is of brick, concrete and steel construction. A power house 80 by 60 feet is located on the north side and does not show in the picture. The company is reported to be plentifully supplied with raw materials and to have orders on hand for its product for months ahead.

SOUTHERN NOTES

A. M. Fisher has been appointed manager of the Atlanta, Georgia, branch of The Mason Tire & Rubber Co., Cleveland, Ohio.

The Delion Tire & Rubber Co. has moved to its new plant in Baltimore, Maryland, which is considered one of the most up-to-date tire factories in the country. The company is planning an extensive advertising campaign for 1921 and entirely new policies in effective dealer cooperation.

Earl E. Harrington, who has just begun his service as general superintendent of the Delion Tire & Rubber Co., Baltimore, Maryland, is a native of Akron, and has grown up in the rubber industry. Since leaving college he has been connected with the Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio; Firestone Tire & Rubber Co., Akron, and the Goodyear Tire & Rubber Co., working on tire production and construction engineering problems in the technical service division of the development department of the latter company for the past five years. Mr. Harrington is considered one of the most progressive young superintendents in the country.

The textile mill and tire factory of the Cumberland Tire & Rubber Co., Louisville, Kentucky, are about ready for operation. The company will produce a cord fabric exclusively and has a capacity of about five times its own requirements. The surplus production has practically been contracted for. The officers of the company are: A. L. Henry, president; F. W. O'Brien, vice-president and general manager; D. D. Thompson, treasurer; C. C. Hagan, secretary. The company's capitalization is \$1,500,000.

"CRUDE RUBBER AND COMPOUNDING INGREDIENTS" AND "RUBBER MACHINERY," by Henry C. Pearson, should be in the library of every progressive rubber man.

THE RUBBER TRADE IN NEW JERSEY

By Our Regular Correspondent

TRENTON NOTES

THE STOKES ASBESTOS Co., which was recently incorporated with a capital of \$1,000,000, to manufacture rubber and asbestos articles, has completed its new plant adjoining the works of the Thermoid Rubber Co. The new plant consists of two complete units erected on a ten-acre tract. One of the buildings is four stories, 200 by 80 feet, while the other is one story, 200 by 150 feet, and the floor space comprises two acres. The Thermoid company will continue making automobile tires, tubes, brake linings and hose in the old part of the plant, while the new part will be used by the new company solely for making asbestos yarn and textiles for the Thermoid company. Special machinery has been installed for this purpose. The officials of the new company are: William J. B. Stokes, head of the Thermoid Rubber Co.; Joseph O. Stokes, of the Joseph Stokes and the Home Rubber companies, and Robert J. Stokes, secretary of the Thermoid Rubber Co.

William J. B. Stokes, treasurer of the Thermoid Rubber Co., who has been confined to his home for some time by illness, is now able to be about again and attend to business as usual.

Officials of the Thermoid Rubber Co. recently tendered the office force a banquet at the Hildebrecht restaurant, the affair being the third annual Christmas party. Following the dinner dancing was enjoyed. Edmund W. Craft, purchasing agent of the company, played the rôle of Santa Claus. John T. Spicer, head of the publicity department, was postmaster. Seventy-five persons attended.

Louis P. Destribats, one of the founders of the Ajax Rubber Co., Inc., has resigned as general manager, and the position is now being filled by William McMann, of Detroit, Michigan. Mr. Destribats will continue as vice-president and a member of the board of directors. Mr. McMann was formerly associated with the United States Tire Co. at Detroit. It was the intention of the Ajax Rubber Co. some time ago to erect a plant at Detroit, and Mr. McMann was to supervise the construction of the factory and manage it. Later it was decided to abandon the proposition and build additions to the Trenton plant to take care of future orders.

The Ajax Rubber Co., Inc., has made its annual contributions of money to the various Trenton hospitals.

"Broughton Night," in honor of John S. Broughton, president of the United & Globe Rubber Co., was recently observed by Trenton Forest, No. 4, Tall Cedars of Lebanon. Mr. Broughton was the first Past Supreme Grand Tall Cedar.

William L. Blodgett, formerly secretary of the Hamilton Rubber Manufacturing Co., Trenton, and Mrs. Blodgett have gone to Florida, where they will spend the winter along the Indian river.

William H. Callen has opened a tire vulcanizing establishment on North Willow street, Trenton, and reports business good. Mr. Callen was previously employed in a Trenton tire factory.

Joseph Papier, proprietor of Joe's Tire Shop, East Front street, Trenton, will shortly open a branch tire and accessory shop at Broad and Perry streets.

Charles J. Hetzel, tire and accessory dealer, Trenton, has filed a voluntary petition in bankruptcy in the United States District Court. His liabilities are \$20,102.33, and his assets \$6,757.17. His stock is valued at \$3,000. Mr. Hetzel was the Trenton agent for Oldfield tires and has been engaged in business for some time.

A portion of the plant of the Puritan Rubber Co., Trenton, was destroyed by fire on January 18. The burned building was a two-story brick structure, 60 by 80 feet, used partly for reclaiming purposes and the top floor for storage. Considerable rubber was destroyed and the reclaiming machinery badly damaged. C. L. Seifert, head of the company, believes the fire was caused by spontaneous combustion. The company intends to rebuild at once with a modern addition. The damage caused is estimated at several thousand dollars.

MISCELLANEOUS NEW JERSEY NOTES

Chancellor Lewis has issued an order requiring the Louis H. Forester Co., of 132 Bloomfield street, Hoboken, New Jersey, to show cause why a receiver should not be appointed. Allegations of insolvency are made against the concern by the Essex Rubber Co., Trenton, which has a claim for merchandise. The assets of the Forester Company are placed at \$47,000. The Essex Rubber Co. also charges that two judgments aggregating \$2,500 have been recovered against the Forester company in the New Jersey Supreme Court.

The New Jersey Rubber Co., Lambertville, New Jersey, has installed a fire-extinguishing sprinkler system. The plant has been idle for some weeks and the spare time is being used in making improvements and alterations that will enable the work to run more satisfactorily when operations are resumed.

A jury in the Essex County Court, New Jersey, returned a verdict for \$1,433.33 in favor of the Gillette Tire Co., of Newark, against Joseph Pansulla, Mannie Kessler, Samuel Hirsch and Louis Silverman, who were found guilty of conspiracy to defraud, by falsely establishing credit. The tire company charged that the defendants established a business in Newark under the name of the Simpson Tire Co., bought tires on credit, and after operating for a month, discontinued business without paying for them. The Fisk Rubber Co. also obtained a judgment against two of the firm.

The Economy Tire Exchange, Inc., of Newark, New Jersey, has been incorporated, with \$100,000 capital, to deal in tires. The incorporators are: Hyman Cohen, Harry A. Harrison, and Harry Settel, all of Newark.

J. Claude English, whose garage and tire shop at Asbury Park, New Jersey, was recently destroyed by fire, has taken out a permit for the erection of a new structure at Asbury avenue and Main street.

The intermediate department of the Newport Chemical Works, Incorporated, which was located at 120 Broadway, New York City, has been transferred to Passaic, New Jersey.

"MIRACLE" FAN BELT

Ordinary motor fan belts of duck and rubber are more or less liable to stretch, thus necessitating the trouble of being shortened and rejoined. The latest development in motor fan belts is found in the "Miracle" fan belt, the feature of which is a single strip of rawhide inserted in the center of light rubberized duck plies. This feature effectually prevents stretching and greatly prolongs the durability of the belt in service. On the exterior, the belt has a rubber covering, and is stitched through and through to hold the plies against separation, since owing to the presence of rawhide in the construction the belt can be cured only by acid or vapor cure.—Rawhide Products Corporation, 1834 Broadway, New York.

"CRUDE RUBBER AND COMPOUNDING INGREDIENTS" should be in the library of every progressive rubber man.

THE RUBBER TRADE IN MASSACHUSETTS

By Our Regular Correspondent

WITH new price lists on rubber boots, shoes and canvas footwear revised in accordance with the falling raw material market and wage schedules equitably adjusted to present conditions, increasing activity is beginning to be felt in this important branch of Massachusetts rubber goods manufacture. The new price lists, effective January 1, 1921, but subject to change without notice, show average reductions of 10 per cent or more, based on careful consideration of the manufacturing conditions likely to prevail during the present year. The cooperation of retailers through early orders to cover their requirements for the coming season is being urged in order that at normal factory capacity and minimum prices the supply may meet the demand as normal buying conditions are resumed. The open winter in many sections of the country is curtailing the sale of rubber footwear considerably, but it is hopefully recalled that February and March are usually among the best selling months. Canvas footwear orders, while not yet heavy, are encouraging, and output in most factories will increase during the present month.

MISCELLANEOUS MASSACHUSETTS NOTES

An increase in the number of employees from 25 in 1908 to 1,700 in 1920 is one measure of the growth of the Converse Rubber Shoe Co., of Malden. Production during the past year has been the largest in the history of the company. With two shifts of gum shoe makers, the daily ticket exceeded 19,000 pairs in December, the output of rubbers, gaiters and arctics being considerably above normal at that season of the year. It is anticipated that the total sales figure for the fiscal year ending March 31, 1921, will be over \$7,000,000, an increase of over 50 per cent. Rapid progress has been made by the tire division, also operating with two shifts, and Converse tires are rapidly coming to the front. While the night shifts have been discontinued the factory is operating full time with no curtailment of operating force other than to increase its efficiency. The capital stock of the company has recently been increased from \$3,000,000 to \$4,000,000 by an issue of 10,000 additional shares of non-redeemable preferred stock at not less than par.

Damage of \$3,000 was caused recently by a fire in the cement shed of the Converse Rubber Shoe Co., Malden, Massachusetts. The blaze was due to spontaneous combustion and the building, a structure 25 by 12 feet, was destroyed. A quantity of benzine in the shed burned fiercely for a short time, but firemen protected the other buildings.

Shortly before Christmas an \$87,000 bonus distribution was made by the Boston Rubber Shoe Co., Malden, Massachusetts, to its employees. This was the result of action taken by the factory council last May, when it was suggested that instead of a straight weekly increase in wages the company lay aside a bonus each week, to be payable before Christmas.

The will of the late Harry E. Converse, former president of the Boston Rubber Shoe Co., of Malden, was offered for probate early in January before Judge Chamberlain in the Plymouth County Probate Court. There is an estate of \$1,400,000 personal and \$250,000 real. The greater part of the property goes to the family, there being no public bequests. Moorfield Story, Parker Converse, Edward N. Benson and Frank B. Bemis are named executors. A clause in the will asks that no one shall wear mourning for the deceased or otherwise change the usual habits of living.

Lester Leland, vice-chairman of the United States Rubber Co., has been elected president of the Boston Rubber Shoe Co., Malden, succeeding the late Colonel Harry E. Converse, whose obituary was published in our January issue. Mr. Leland is a brother-in-law of Colonel Converse and has been vice-president of the company. Colonel Harry P. Ballard, treasurer, has been elected

vice-president to succeed Mr. Leland and will perform the duties of both offices.

The canvas footwear department of the Hood Rubber Co., Watertown, Massachusetts, was closed from January 1 to 24, adding some 300 operatives to the 900 from the tire department, previously closed, who were temporarily out of work.

Alfred A. Glidden, general superintendent of the Hood Rubber Co. plant at Watertown, who has been with the company since 1896, has been promoted to manager of the industrial development department. Charles Roper, who has been in charge of the footwear department, succeeds him.

On the afternoon of December 31 gold pieces were presented to 221 employees of the Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, men and women, who had been with the company from ten to forty years. The meeting was held in the gaily decorated cafeteria, with music by the Bowohoco orchestra, and singing by the whole assemblage. General Manager George E. Hall spoke frankly regarding the inevitable liquidation of commodities and labor demanded by the times. He expressed the hope that for a time at least it might be possible to maintain the present wage scales of the older employees, although new employees would be taken on at a lower rate. To do this, he said, would require increased individual efficiency, as it made no difference to the company whether wages were reduced 10 per cent or efficiency increased 10 per cent.

In an effort to encourage wider reading of trade, business and technical magazines by employees, the service department of the Boston Woven Hose & Rubber Co., of Cambridge, has established a reading club which maintains a route list for each of its many industrial magazines, each person being allowed the use of any publication for three days. The low club-rate subscription to THE INDIA RUBBER WORLD is to encourage reading clubs.

The Metropolitan Air Goods Co., Athol, Massachusetts, maker of pneumatic rubber goods for campers, sportsmen, etc., is now in its new factory and expects to be prepared for business on its general lines after the middle of January.

BOSTON NOTES

J. D. Cary, a veteran tire man of national experience, has been appointed New England distributor for McGraw tires in Boston. He joins the company after a sojourn of two years on the Pacific Coast. Years ago he sold Morgan & Wright bicycle tires. For a decade he was with The B. F. Goodrich Co., subsequently joining the Kelly-Springfield Tire Co., which he served as branch and district manager, and in the general sales department.

The annual sales convention of the tire division of the Converse Rubber Shoe Co., of Malden, Massachusetts, was held January 17 and 18, at the Boston Athletic Association, with representatives of the firm from all parts of the country attending. The speakers at the morning sessions were F. R. Goodell, general sales manager; Dr. E. A. Wullenweber, production manager; D. W. Boyn, service manager, and C. C. Parlin, of *The Saturday Evening Post*. After luncheon both days the party visited the factory, returning to Boston for dinner at the Hotel Lenox, and later attending the theatre. The dominant note of the convention was one of enthusiasm and confidence.

George F. Willett, president of the Boston Belting Corporation, has advised preferred stockholders in a recent circular letter that the corporation is now free from debt, every creditor having been paid in full, and that both the preferred and common stocks are backed by substantial assets. This fortunate outcome in a financial tangle which for a time threatened disaster is very largely attributable to the forceful and intelligent action of Frederic C. Hood, who as trustee managed the corporation and held its common stock purchased by Mr. Willett in 1919 until final payment had been made.

All of the capital stock and assets of the Boston Belting Co., and all assets of the Boston Belting Corporation relating to the mechanical rubber goods business were purchased in 1919 by W. E. Hardy, F. H. Rice, H. H. Whitesel and associates, who are, respectively, president and general manager, treasurer and director, and sales manager of the original Boston Belting Company which was never dissolved. Thus the mechanical rubber goods business of this, the oldest rubber concern in the country, has been successfully continued without a break by men associated with Thomas A. Forsyth, former head of the firm, and is today in a healthy growing condition. Final figures of gross sales for the year 1920 have not yet been completed, but it is expected that the total will be in the neighborhood of \$1,400,000, with net earnings of close to 10 per cent for the \$500,000 common stock.

RES-PRO INDUSTRIES INC.

One of the latest successful arrivals in the special fabrics field is the Res-Pro Industries, Inc., which was incorporated July 22, 1920, under the laws of Delaware, with a capitalization of \$3,000,000, to manufacture the "Res-Pro" products under the patents and processes owned by this parent company, which will sell its products to its subsidiaries. The officers are: James J. Clifford, president; Luther S. Newell, vice-president in charge of produc-



PRESENT PLANT OF RES-PRO INDUSTRIES INC., CANTON, MASSACHUSETTS

tion; Roland B. Respass, who is the inventor of the Res-Pro processes, vice-president in charge of new developments and patents; William J. Bingham, secretary; Judge W. Lloyd Allen, treasurer and counsel; John W. Clifford, factory manager.

The unwoven sheet fabric manufactured by this company was fully described in *THE INDIA RUBBER WORLD*, June 1, 1919. Raw cotton batting is passed through pressure rollers where special compounds of rubber, etc., are forced into the fiber. It is then dried and pressed, forming a tough, strong, durable sheet fabric adapted for use as insulating material, flexible tubing, belting, tires, fire hose, shoe soles and heels and various other rubber goods, and as a general leather substitute in auto tops, wall coverings, bookbinding, etc.

The Res-Pro Industries Inc. has secured the plant of the C. C. C. Fire Hose Co., Canton, Massachusetts, a going company incorporated under the laws of Maine with a capital of \$50,000, which will make various "Respro" products and be operated as a subsidiary to the parent company. The names of the officers and directors of the C. C. C. Fire Hose Co. were published in *THE INDIA RUBBER WORLD*, January 1, 1921.

Another subsidiary of the Res-Pro Industries Inc. is the Res-Pro Insulating Co., which was incorporated in September, 1920, with a capitalization of \$1,000,000, to manufacture and market insulating materials for the electrical industry. L. O. Duclos is general sales agent for this company.

PLYMOUTH RUBBER CO. OPERATING UNDER RECEIVERSHIP

Involuntary proceedings in bankruptcy were filed against the Plymouth Rubber Co., of Canton, on December 18, in the United States District Court for the District of Massachusetts. The claims of the petitioning creditors were small, aggregating only

about \$3,000, that of the Monatiquot Rubber Works Co., of South Braintree, for \$2,684 being the largest. Prior to the filing of the petition, funds of the company amounting to \$100,000 in four local banks were attached in connection with a suit by A. D. Juilliard & Co., of New York City, claiming \$75,000 damages for alleged breach of contract. The company's difficulties are said to be due to a heavy shrinkage in inventory values with a reduced demand for its products.

Subsequently on December 27, Judge Morton appointed as receivers Arthur H. Weed, Percy A. Atherton and Guy Murchie, all of Boston. The receivers have taken possession of the business, are having an inventory taken, and will start operation of the various departments as business requirements seem to justify. The Gem duck department was opened January 3 and the tape department on January 6.

FIBER BASE RUBBER HEEL

Each year, in response to increasing demand, a greater number of shoes is equipped with rubber heels by the shoe manufacturers. Accordingly, since rubber heels are in the shoe factories to stay, the problem of their proper application has become a very important one. The technical skill of every manufacturer has been taxed to solve the questions that have arisen in regard to processing the rubber half-heel. The degree of attachment secured between leather and rubber leaves much to be desired. The failure to obtain a positive union between the base and rubber tread is the reason why the use of the rubber half-heel heretofore has not been consistent with good shoemaking. Its application has at best been an example of refined shoe cobbling. The growing demand of the trade for the employment of rubber half-heels has led to many improvements in their design, shape, construction and composition.

One of the more recent and successful improvements for the attachment and processing of such heels concerns the permanent union of the rubber tread to a fiber stock base by means of hot vulcanization. The method involved has been perfected, whereby a rubber tread and several plies of leatherboard base are molded and cured securely together. The plies of leatherboard are pierced by a suitable number of nails for attachment of the heel to the shoe. The vulcanized union with the rubber tread is supplemented by a series of interlocking rubber rivets passing through perforations in the leatherboard plies, from the rubber side, thus serving as reinforcement. In this construction washers are eliminated and the heel is better adapted for processing in the shoe factory.

In this type of heel the rubber and fiber parts being positively united, but one nailing operation is required for proper attachment. The leatherboard is said to be perfectly adapted to the operations of skinning, scouring and finishing and a distinct saving is effected by avoiding the assembly of parts, cementing, double nailing, and the use of a leather lift necessary with the ordinary rubber half-heel.

When worn out the rubber portion can be removed without disturbing the nails as they pass completely through the tread and head against the leatherboard base.

For the rubber manufacturer there is the advantage that all parts employed in its construction are visible in the finished heel and the mold overflow is reduced to a feather at the face plate.

In repair work it is claimed that the rubber tread may be more quickly replaced than in the case of practically any other type of heel.—Conant & Co., 7 Water street, Boston, Massachusetts.

STORAGE OF BENZOL OR NAPHTHA

Benzene storage tanks, especially those placed underground or in cellars, have an element of danger in explosion or poisoning by emission of vapors or leakage. Such tanks should be surrounded by inert gases and the outlet and inlet pipes by a casing in order to prevent the above occurrences.

THE RUBBER TRADE IN RHODE ISLAND

By Our Regular Correspondent

THE GENERAL DEPRESSION in industrial affairs which has been growing steadily worse during the past three months is now making itself keenly felt in the rubber manufacturing plants of Rhode Island and it is claimed that the outlook in the rubber business is far from encouraging. This affects all lines of boot and shoes as well as tires of every description and while hopes are expressed for an early revival the present indications do not warrant excessive optimism.

Because of the very open winter and for other reasons the local plants have had less work than has been experienced in several years. In the rubber boot situation Government sales of large quantities of rubber boots that were bought for the army during the war have lessened the demand, already reduced because of weather conditions.

Nearly 4,000 employees of the National India Rubber Co. at Bristol are out of work owing to the shutting down of the factory on January 14 for an indefinite period. This shutdown affects the shoe department to a greater extent than it does the wire division, which will continue production on approximately the present scale of five eight-hour days per week, although it is expected that there may be a curtailment made in this division early in February.

Following a meeting of the factory council about the middle of the month the official notice of the shutdown was posted at the plant reading: "Keds division will complete all work laid out on the ticket, each department shutting down as its work is completed."

"The last day's outside cutting will be January 13. Thereafter all departments of the Keds department will be considered as closed indefinitely until further notice. About February 26, 1921, we will issue statement as to later program.

"The wire division will continue production on approximately the present scale of five eight-hour days per week for the remainder of January. It is also intended to continue a partial production during February, which may be announced some time during the first week in February.

"In the mechanical division only such men will be retained as are necessary for current repairs and maintenance and the working time after January 28 will be curtailed as much as possible.

"The traffic and shipping departments and central stores department will perform only such work as is absolutely necessary, which will mean a radical curtailment after January 28, 1921.

"In any and all departments of the factory it will be our policy to utilize the services of salaried men and women from departments which are shut down and we resume the right to give them preference in all cases over persons working upon an hourly basis.

"Further curtailment of clerks will be managed as individual cases in which the person concerned will be interviewed by the head of the department." This is signed by E. I. Cooper, factory manager, and Sam Connery, chairman of the factory council.

By the closing of the National India Rubber Co.'s plant it became necessary to also close the DeWolf Inn for an indefinite period, and which for the past five years had been an ideal home for the young women employed at the factory. Five years ago the National management purchased the DeWolf Inn to accommodate the large number of out-of-town employees who worked at the plant but were unable to obtain boarding places in the town. At one time when the factory was running on full time there were 170 women at the Inn, but there were only about 70 there when it closed its doors because of the shutdown of the factory. Likewise the Day Nursery on High street which has been maintained by the National management is also closed.

The total amount of money received for enrollment in the fourth roll call of the American Red Cross in Bristol was \$2,246.90, of which the sum of \$1,424.70 was secured at the factory of the National India Rubber Co.

Officials of the Woonsocket Rubber Co. about the same time that the notices were posted at the National plant in Bristol caused notices to be posted in the Alice Mill that it would go on a short-time working schedule to become effective January 20. The new schedule called for 34½ hours a week, which means a six-hour day for five days a week with 4½ hour on Saturdays. Heretofore the plant employing over 1,600 operatives has been running 48 hours a week. It is claimed by the management that business conditions necessitated this action.

The Woonsocket plant of the American Wringer Co., which in normal times employs 900 hands, announced a 20 per cent wage reduction effective January 17. The plant has been partially shut down since November 20, only about 150 employees being kept at work. No date has been set for the reopening of the plant, although the officials say that indications are promising for a resumption of work in the near future. The company announced price reductions of its products on October 10, and again on January 6.

The Manson-Sherman Manufacturing Co., which was recently incorporated under the laws of Rhode Island, to be located in Providence, with a capital stock of \$20,000, has secured a plant at 88 Sprague street, Providence, and will manufacture elastic braids and woven tapes for the electrical and clothing trades. The new concern will begin with an equipment of three narrow fabric looms having a combined capacity of 116 shuttles on single tapes and 50 flat braiders for making one-quarter and narrower elastic braid.

The Revere Rubber Co. has been making extensive alterations and improvements in its garage on Hemlock street, Providence, so that it will afford accommodations for at least thirty cars. The company is also erecting a steel building to be used for the housing of the small locomotive that is used for yard and switching purposes in handling freight cars on the spur tracks that enter the company's plant.

Charles A. Roberge is the sole owner of the business that is being conducted at 88 Front street, Woonsocket, under the firm style of the Roberge Truck Tire Sales.

The J. M. Gibbons Tire Co., 103 Aborn street, Providence, is owned and conducted by J. M. Gibbons, of Providence, and A. C. Anderson, of East Providence.

Edward M. Hayes et al., have given a chattel mortgage for \$15,000 to the Ajax Rubber Co., Inc., on tires, tubes, auto accessories, etc., at 119 Broadway, Providence.

THE RUBBER TRADE IN OHIO

By Our Regular Correspondent

THAT the rubber tire industry is due for a real revival is the opinion of Akron rubber men, based upon automobile registration figures for the past year, gathered and given out by The B. F. Goodrich Co. A total of 9,295,252 automobiles were registered in the United States last year, which is an increase of 1,691,236, or 22.2 per cent over the previous year, and the largest increase in the history of the automotive industry. In 1919 the increase was 1,457,300.

Estimates based upon this number of automobiles indicate that with each automobile wearing out four tires a year, the new index figure used by Akron rubber men, the number of tires required for the coming year will be not less than 37,000,000 and will furnish employment for approximately 120,000 men and women.

If these figures prove to be correct, the production for the year will be only approximately 11,000,000 less than it would have been last year, when the peak production was estimated to be six tires for the 8,000,000 cars then in operation.

This will also be reflected in the crude rubber market, because it is authoritatively estimated that not more than 72,000 tons are now in the country, and also in the fabric market, since the large

stocks on hand when the depression struck the automotive and tire industries have dwindled considerably during the past five months.

Indications are that the bottom has finally been reached and that slowly but surely the industry will work itself back to a more normal basis, with but little hope of getting back to the position it occupied in July of last year. The turn of the year saw in Akron a slight gain in production. Most of the factories made arrangements to lengthen the working hours, and thereby increased production from 15 to 50 per cent, although several of the factories actually decreased production for the month. Manufacturers generally look upon the situation with more optimism and believe that a few months will see larger production.

Conservative estimates by rubber men at the first of the year placed the unfilled orders for January shipment on the books of the larger Akron factories at \$50,000,000, and considering the slightly increased production, and the fact that many tires still remain in stock, it would not be surprising if shipments this month amount to at least that figure.

That business can remain at this almost peak figure for the year is not believed by anyone in the industry, because the orders are looked upon as accumulations held up until after the taking of inventories by the dealers and orders from automobile manufacturers in anticipation of their needs during the next few months.

Akron bankers and rubber manufacturers have used every effort to avoid a price war in the tire business and indications now are that their efforts will be successful.

When the crash in the tire business came many of the smaller companies unloaded large lots of tires at job lot prices, and while the larger companies continued to have on hand large amounts of raw materials purchased at peak prices, the smaller rubber companies could go into the cheap markets and purchase supplies.

With cheaper raw materials and cheaper labor these smaller companies were in a position to go into the tire market with lower prices, and for some little time it appeared that in their determination to get business they would do so, in some instances at prices not profitable to themselves.

However, the more conservative heads of the smaller companies felt that while these tactics might work for a while, they were in business for a legitimate profit, and so decided to maintain prices at the decreased levels placed by the leaders in the industry.

One Akron banker pointed out several times that if tire manufacturers operated on a conservative basis, and each and all went after business with a determination to get his share at a profitable figure, the industry would revive, whereas if the various companies went out to sell goods regardless of profits, with the main thought being the getting of business, the rubber industry was due for a worse crash than it has experienced.

Among the interviews given out by rubber men regarding better business, was the statement of W. O. Rutherford, sales manager of The B. F. Goodrich Co., to the effect that the dealers' stocks are practically exhausted and that the tire manufacturers must produce goods to meet the demand of the 9,000,000 automobiles in the United States if they are not to be run on the rims.

It is true the upturn was not as large the first of the year as was anticipated by rubber men. Henry Ford suddenly and unexpectedly closed his factory, which meant a decrease in tire sales and had a general demoralizing influence on the automobile manufacturers and in turn on the tire manufacturers.

AKRON NOTES

That a spirit of optimism prevails is indicated by the erroneous stories circulated regarding the number of men needed in Akron. These stories gained wide credence, with the result that Akron manufacturers have had to use drastic methods to inform the country that no men are needed and that former employees will be given preference when men are again required in the industry.

That the days of extravagant wages and the "silk shirt" era in

the rubber industry in Akron are over is made plain by the announcement on January 4 of a decrease of 12½ per cent in the wages at The Goodyear Tire & Rubber Co. and a reduction of 15 to 20 per cent in salaries in the office. The reduction was favorably voted upon by the Goodyear Industrial Assembly, made up of representatives of the workmen in the factory and the men and women in the office.

More than one hundred business men in Akron sent letters containing the season's greetings to F. A. Seiberling, president of The Goodyear Tire & Rubber Co., just before Christmas. The movement was spontaneous and the replies from Mr. Seiberling indicated that the spirit with which they were sent was thoroughly appreciated.

The Akron automobile show during the last week of 1920 was one of the most successful ever held in the city, in spite of the financial depression. For some little time officials of the show association hesitated to put on the exhibition, but reports from practically every dealer who had space indicate that a very fair business was done and that a large number of orders were booked during the first few weeks of this year.

Henry G. Lubke, export manager of the General Tire & Rubber Co., returned from Europe recently with sufficient business to make increased production in the factory necessary. Mr. Lubke spent five months in Europe and states that conditions are rapidly improving, except in Germany, where the question of indemnity is holding back recuperation. He believes that export business to Europe will be as great during the present year as last, which was the banner year for his company. This is the fifth of the "Big Five" rubber manufacturing companies in Akron employing normally more than 1,000 men and having sales running well over \$5,000,000 a year. A large portion of the business is done in foreign countries.

The Portage Rubber Co., of Barberton, Ohio, in the Akron district, is working upon refinancing plans involving \$1,500,000 to take care of ready cash needs in the business for the coming year. At the time of writing, the officers of the company were still negotiating with eastern capitalists and bankers for the finances, but indications were that the plans would be consummated before the end of the month.

At the time of the postponed annual meeting of the stockholders the directors and the president, M. S. Long, were given authority to use their discretion to bring about the refinancing of the company. Mr. Long informed the stockholders that more than one-third as much business was on the books of the company as was done during the whole of the past year. The company did \$5,000,000 worth of business during 1920, as was shown in the annual report given out at the regular annual meeting in November.

The company has outstanding at present \$1,536,000 worth of preferred stock and \$2,765,000 worth of common stock. Some stock has been subscribed, but not paid for and is not included in the figures. During the past two years its business has greatly increased under new management and the company is generally looked up as being in a comparatively strong position.

The B. F. Goodrich Co. was the host to the American Institute of Electrical Engineers at a convention held in Akron and Cleveland, January 14. The engineers took luncheon at the company dining room and made an inspection trip through the factory. The principal topic of discussion at the meeting was the application of electrical power to the rubber industry.

The refinancing program of The Goodyear Tire & Rubber Co., involving \$50,000,000, which has been under way since late in the Fall, has not been completed. Another meeting of stockholders was called for January 21, and subsequently postponed until February 1, at which time the directors hope to announce the completion of the plans.

The preferred stockholders have given their approval of plans to mortgage the company's property for \$50,000,000, and negotiations by the officials, which have been under way for two months,

are being continued in New York. The first definite statement regarding the financial conditions of the Goodyear company was given out at the preferred stockholders' meeting, December 23, in the form of a report of the auditing by Price-Waterhouse & Co.

Assets are given as \$153,076,840, from which is subtracted the first deficit shown since 1903, before providing for possible losses on contractual obligations for rubber and fabric of \$15,647,653.56.

A total of \$10,787,494 has been charged off for depreciation on the Akron plant, Akron and branch automobiles, and furniture and equipment at branches.

Outstanding preferred stock is \$65,497,700; common stock, \$61,111,650; total bills payable, \$23,879,812, not including \$4,388,686 in rubber and fabric acceptances payable, and \$12,711,168 in bills payable, including Federal taxes due.

The Sumatra rubber plantation is valued at \$5,003,257, and subsidiary companies, wholly owned, \$13,352,158. Inventories less reserve, are given at \$41,167,758.

At this writing the company has orders on its books which practically demand doubled production, but factory activities will not increase until the financial difficulties are ironed out.

The story of the rise of L. C. Rockhill to the directorate of The Goodyear Tire & Rubber Co. is the story of a man who thirteen years ago chose rubber goods manufacture as one of the great future industries, and remained with it, working with all his might. Mr. Rockhill started with the Goodyear company in the repair and accessory department, shifted to the aeronautical department, then to the tire sales department, in which he went to the top, and has recently been elected a member of the board of directors to succeed J. P. Loomis.

Albert L. Ely, formerly in charge of the patent department of the Firestone Tire & Rubber Co., Akron, has opened offices in connection with the law offices of Herberich, Burroughs and Smith, Herberich building, Akron, and will practice patent and trade mark law exclusively.

The India Tire & Rubber Co., Akron, has established an export department, in charge of Lynn Harvey, formerly assistant export manager for the Miller Rubber Co., Akron. Mr. Harvey recently returned from a business trip covering Australia, Tasmania, New Zealand and Hawaii, and reports good business in those regions.

The Interlocking Cord Tire & Belt Co., Akron and Mogadore, Ohio, is in the hands of Elihu Harpham, an Akron realtor who was appointed receiver last month by Judge W. I. Ahern in the Common Pleas Court on petition of certain stockholders and officials of the company.

CLEVELAND NOTES

The general offices and Cleveland salesrooms of The McGraw Tire & Rubber Co. have been removed from 1900 Euclid avenue and are now located in the Cook building, Prospect avenue and 46th street, Cleveland, the company having under lease 30,000 square feet of space, which gives ample room for maintenance of the necessary stock of tires in all sizes.

Dexter C. Hathaway has joined the sales force of The McGraw Tire & Rubber Co., Cleveland, in the capacity of Cleveland district sales manager, having general direction of sales in Western Pennsylvania, Western New York, Ohio, West Virginia and Kentucky. Mr. Hathaway will also devote time to the development of the company's business with commercial accounts.

The McGraw Tire & Rubber Co., East Palestine and Cleveland, Ohio, was taken over last month by the Maynard H. Murch Co., Cleveland, Ohio, investment bankers, to protect the preferred stockholders, and in accordance with the right reserved by the Murch Company, who bought \$2,500,000 preferred stock in August, 1919.

R. G. Herzberger has been appointed a Cleveland territorial manager for The Goodyear Tire & Rubber Co., Akron.

MISCELLANEOUS OHIO NOTES

At the second annual stockholders' meeting of the New Tread Tire Co., Columbiana, Ohio, January 10, 1921, the following directors were elected: S. W. Tidd, C. V. Calvin, Eric P. Altenburg, C. R. Heck, O. W. Altenburg, S. J. Heck, W. O. Wallace, E. L. Dieffenbacher and R. F. Luce. Officers for the coming year are: S. W. Tidd, president; C. V. Calvin, secretary and treasurer; Eric P. Altenburg, vice-president and general manager. The New Tread Tire Co. manufactures "Marvel" cord and fabric tires and reports a very successful year, with sales showing 100 per cent increase over the preceding year.

At its annual stockholders' meeting, held at East Palestine, Ohio, January 10, The McGraw Tire & Rubber Co. elected John Morgan president and William S. Marlatt secretary and treasurer for the present year. The following directors were chosen: John Morgan, L. M. Keyes and Charles W. Wheeler, of East Palestine; William S. Marlatt, W. S. Quinlan, Maynard H. Murch, Mac S. Bethel and George E. Randles, of Cleveland; R. V. Mitchell, Canton—all in Ohio; C. H. Coffin, Chicago; Martin J. Gillen, New York City. The company has moved its offices from 1900 Euclid avenue to 4810 Prospect avenue, Cleveland, Ohio.

The Master Tire & Rubber Co., Dayton, Ohio, which was incorporated in May, 1920, to manufacture 30 by 3½-inch cord tires exclusively, reports the demand for a quality tire of this size to more than justify the belief which led to the company's incorporation. During 1920 the company's plant was running to capacity, 500 tires per day. The plant was closed during the month of November, but is now operating at full capacity and has bright prospects for 1921. Its future plans include the erection of a six-story plant adjoining its present unit, which will have a production capacity of 2,000 tires daily, and it is hoped to have this building ready for operation by the Spring of 1922.

A new salesman for The Mason Tire & Rubber Co. is George V. Armstrong, who will cover part of the state of Ohio, with headquarters at Portsmouth, Ohio. Mr. Armstrong has had several years of experience in tire selling with the Ajax Rubber Co., and the Kokomo Rubber Co.'s branches in Cincinnati.

Removal has been completed of the machinery, materials and manufacturing equipment of the Polack Tyre & Rubber Co. from Bridgeport, Connecticut, to Willoughby, Ohio, where the Polack company will be operated as a subsidiary of the Buckeye Rubber Products Co. In New York City the latter company will maintain an office, warehouse and service station, for Polack tires, at 527-529 West 23d street.

The International Golf Ball Co., Newark, Ohio, was organized in December, 1919, under the laws of that state, with an authorized capital stock of \$10,000, to manufacture Burke golf balls as a subsidiary of The Burke Golf Co. The capital has since been increased to \$150,000, divided into \$100,000 preferred stock and \$50,000 common. The officers of the company are: Joseph Introcasso, president; George Emch, vice-president; and W. K. Wobbecke, secretary and treasurer. The amount of business developed during the first year of operation is attributed to the popularity of the Burke line of golf goods. The Burke "Grand Prize" golf ball was described in our issue of July 1, 1920.

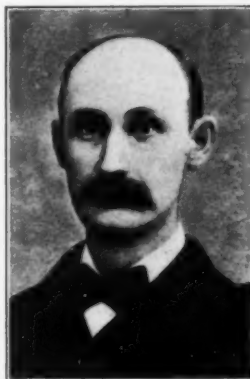
The Mason Tire & Rubber Co., Kent, Ohio, at its annual meeting of stockholders, held December 14, 1920, reelected the directors and the following officers: O. M. Mason, president; John H. Diehl, first vice-president; R. W. McKinnon, second vice-president; William A. Cluff, secretary, and D. M. Mason, treasurer. The close of the fiscal year of the company was changed from October 31 to December 31, to coincide with the calendar year. The company reports 100 per cent growth during the year just ended.

THE GOODRICH GOLDEN ANNIVERSARY

THE MEMORY of a noted pioneer in the rubber industry, Doctor Benjamin Franklin Goodrich, was honored last month on the golden anniversary of the founding of The B. F. Goodrich Co., the parent factory of the "Rubber City." Officials and employees of the company, residents of the city, and thousands of friends and customers throughout the country joined in paying



B. G. WORK,
President



DR. B. F. GOODRICH,
Founder

THE B. F. GOODRICH CO.

tribute to the memory of Doctor Goodrich and in observing the termination of a full half century of the company he established.

Doctor Goodrich, a resident of New York State, after serving as a surgeon during the Civil War, took up real estate and shortly found himself in possession of a small rubber factory at Hastings-on-the-Hudson, New York. Attracted by Akron's transportation advantages and an offer of financial assistance from a group of Akron men, he brought his equipment to that city. Manufacture was first started in a small, two-story brick building, 40 by 100 feet, with a force of 25 men. Today the plant comprises 63 buildings of brick and steel, covering 110 acres of land.

The first big stride in the growth of the Goodrich came with the popularity of the bicycle. When the high wheelers gave way to what was called the "safety" bicycle, pneumatic tires were introduced and Goodrich speedily took up their manufacture. Before this time, the company had taken the initial steps in the evolution of rubber-shod wheels by perfecting the solid rubber tire for carriages. The success of this carriage tire, followed by that of the pneumatic tire for bicycles, naturally led to the manufacture of tires for automobiles. The first one made was a crude affair, with many layers of fabric and a very heavy tread. Improvements came rapidly, however, and by the time automobiles passed the "freak" stage, a dependable tire was being made in quantity.

Although the manufacture of auto tires was a large factor in the latter-day growth of Goodrich, they are nevertheless only one branch of the organization's production. Mechanical rubber goods, rubber footwear, druggists' rubber sundries, and hard rubber goods also are manufactured in enormous quantities.

Doctor Goodrich lived to see the Goodrich organization well started on the road toward success, even though he died before the automobile was invented. He had done his work well and had trained men to take his place in developing the industry even further.

The editor of this journal is proud to add his words of appreciation. Doctor Goodrich was a singularly alert and forceful personality who radiated energy and optimism. To use his own

phrase, he was "swindled into the rubber business" and was bound to win out if only for that reason. His early struggles were a succession of brilliant moves, sharp disappointments, but constant progress. One perfectly sane and then feasible plan was a combination of the then existing rubber manufacturers. His plan was viewed with suspicion by the old-timers and so he dropped it with disgust. He did remark, however, "We will go it alone and one day the Goodrich company will do more business than the whole lot of them."

Curiously enough he picked the man who was to do the greatest constructive work of the company, while that man was yet a boy. Speaking to the writer, he pointed out a thick-set, tanned youth of twenty, saying, "That is young Work. Just rode here from Boston on a high-wheel bicycle. Something of a feat. He joins our force shortly and will go clear to the top."

MANAGER OF THE MASON TIRE & RUBBER CO.

DUDLEY M. MASON, treasurer and general manager of The Mason Tire & Rubber Co., Kent, Ohio, one of the notably successful of the younger tire companies, was born in Middlesborough, Kentucky, on May 2, 1890. His education was obtained in the public schools of Des Moines, Iowa, and the Des Moines Business College.

Upon leaving college he was employed for a short time as secretary to the business manager of the *Des Moines Register and Leader*, then as editor of one or two house organs. For the past eleven years he has devoted himself to sales and organization work. During this time he formed the investment security house of Mason Brothers, in Cleveland, Ohio, followed by the organization of The Mason Tire & Rubber Co., The Mason Cotton Fabric Co. (since absorbed by the tire company), and The Mason Rubber Plantations Co. In 1915 the Mason factory was erected, and since that time he has been the treasurer and general manager. He was recently elected president of the Mid-West Rubber Manufacturers' Association.

Mr. Mason is a golf enthusiast and what recreation hours are not claimed by his wife and two boys are spent on the links.



DUDLEY M. MASON

LANCASTER "WIREGRIP" TIRE DISCONTINUED

The "Wiregrip" tire, formerly manufactured under patent, was discontinued some time ago, and the tire now being marketed by the same manufacturer, described and illustrated as the "Wiregrip" on page 262 of our January issue, is the "Lancaster Cord."—The Lancaster Tire & Rubber Co., Columbus, Ohio.

WELDO-PATCH

"Weldo-Patch" is high-grade black gum stock calendered on holland cloth. Cuts in inner tubes, hot-water bottles, rubber footwear or other soft rubber goods are repaired by applying a piece of weldo-patch over the buffed surface, previously cleaned with a thin solution of benzol cement, which is entirely removed by scraping from the surface before laying on the repairing material. No vulcanization is needed to effect a permanent repair.—Weldo-Patch Manufacturing Co., 160 Fifth avenue, New York.

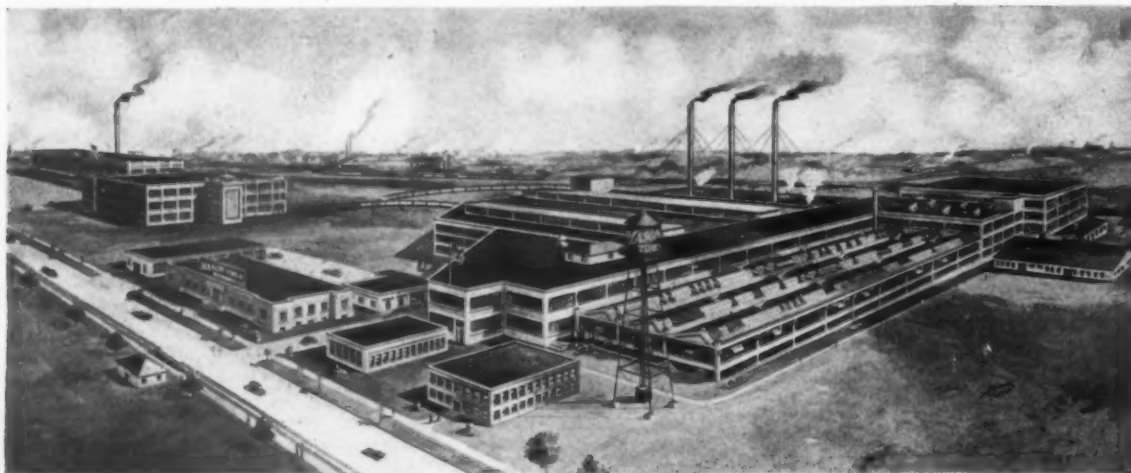
THE RECORD OF MASON TIRES

IN these days of deflation and uncertainty, of which the tire industry is bearing its share, records of continuous operation and steady expansion in production capacity and organization, both at home and abroad, make encouraging reading.

The Mason Tire & Rubber Co. began business in 1916 in a four-room suite of an office building in Kent, Ohio, with a capital

Mason tires are also made in metric sizes and are widely known abroad through the work of the export department, which has kept pace with the home market and now has accounts in practically every country in the world.

The Mason organization is one of the most enterprising members of the rubber industry. Its liberal policy and farsightedness as shown by its early announcement of the "satisfaction—no-mileage-limit" guaranty; its national advertising campaigns and



FABRIC MILL AND PLANT OF THE MASON TIRE & RUBBER CO., KENT, OHIO

of \$250,000. The original building of the present plant had 40,000 square feet of floor space. This has grown under three successive yearly expansions into 375,000 square feet, including the textile division, comprised in eight buildings spread over a tract half a mile in length and one thousand feet in depth, adjoining the Erie railroad. The capital has increased, likewise by successive stages, to \$10,500,000 and the production capacity from 321 tires per month to 42,000 per month.

Aside from the plant that is shown in the illustration, extensive housing plans are being carried out to accommodate the increase of population of Kent caused by the rapid growth of the new industry. A large number of modern houses have been built, including three units of a community center near the plant. In addition to this a plot of 140 acres near the city limits has been acquired which will be improved as needed.

The textile division includes the first cotton fabric mill ever built in the Akron district. It has 10,000 spindles, cost over \$2,000,000, and is so planned that it can be increased five times over without disturbing operation in any way. This mill produces tire cord and fabric from the raw cotton and enables the company to control that quality and uniformity of product essential to tire success.

Three outstanding features of Mason tire progress in recent months indicate the company's anticipation of automotive needs. Chief of these is the "Mason Junior cord"—a cord tire sold at approximately fabric price and designed to meet the growing demand for cords. This tire can be put on the car singly, as needed, for replacement of fabric tires without the danger of injury to the mechanism that is common when oversize cords are so applied. Other achievements are the heavy duty solid tire of such design as to overcome faulty features of old style construction, and the Mason cushion tire for light truck work. The success that all of three types have met with indicates that the production capacity of every department will be taxed, notwithstanding the successive enlargements that have been made in recent years.

the rapid increase of branches which now include the principal cities of the country—these indicate an executive personnel with its feet on the ground, and a forward marching intent which does not wait for fair weather.

THE RUBBER TRADE IN THE MID-WEST

By Our Regular Correspondent

MID-WEST RUBBER MANUFACTURERS' ASSOCIATION

THE Mid-West Rubber Manufacturers' Association held its January luncheon and meeting at the Auditorium Hotel, Chicago, Illinois, Tuesday, January 4, at 1 p. m.

On account of the annual meetings and dinner of The Rubber Association of America, which were held in New York City on January 10; also the fact that it was so near the holidays, there was a small attendance but it was very enthusiastic.

The Board of Directors' meeting was called to order at 11 a. m. After luncheon President D. M. Mason gave an interesting talk on "Cost of Tire Production."

The next monthly luncheon and meeting will be held February 15, at the Chicago Athletic Association, 12 South Michigan avenue, Chicago, Illinois.

The factory of the Zeglen Tire & Rubber Co., 1316 Rawson street, Chicago, Illinois, is equipped for manufacturing 600 tires and 1,000 inner tubes daily. W. L. Copley, a well-known tire designer, for nine years connected with the Portage Tire & Rubber Co., Akron, as a department superintendent, has been engaged as general superintendent of the plant. The officers of the company are: J. P. Drish, president; S. Strzelecki, treasurer, and F. J. Kalodzinski, secretary.

The Robertson Resilient Wheel Corporation, 1697 Broadway, New York City, has taken a long lease of space in the Armour Postal Station building, 3019 Indiana avenue, Chicago, and will occupy as general offices about the first of February. This company's wheel was described in THE INDIA RUBBER WORLD, December 1, 1920.

F. A. Schenzinger, who had been with the Chicago office of the Roessler & Hasslacher Chemical Co. for 22 years, recently became a salesman for the Wishnick-Tumpeier Chemical Co., 365 East Illinois street, Chicago.

Arthur J. Straney, for many years district manager of sales for The B. F. Goodrich Rubber Co., in Los Angeles, has been promoted to take charge of the Indianapolis Goodrich branch.

MISCELLANEOUS MID-WESTERN NOTES

The Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin, has secured offices in the Railway Exchange Building, St. Louis, Missouri. The new office is a branch of the Chicago district office and has become necessary because of the increasing amount of business in the St. Louis territory. Harold Phillips, formerly office manager of the Chicago branch, is in charge.

New machinery and equipment in the factory of the Racine Rubber Co., Racine, Wisconsin, includes an increase to the power house and the installation of a new General Electric turbine of 1,250 kilowatt capacity, a 500 h.-p. boiler and a complete economizer for the boiler room. The new building, which was completed last summer, is four stories in height, 180 feet long by 80 feet wide. In the lower floor, which is an addition to the mill room, have been installed ten new mixing mills, 22 by 60 inches.

The Latex Tire & Rubber Co., Fond du Lac, Wisconsin, maker of tires, tubes and rubber products, reports a very bright outlook for the future. The company is erecting an additional three-story building, 60 by 80 feet, to cost about \$55,000, which will be used for the manufacture of molded goods and tire sundries, and it is about to install new mills and calenders to cost in the neighborhood of \$75,000.

The Jefferson Rubber Co., Jefferson, Wisconsin, is erecting a modern factory, 80 by 320 feet, to be devoted to the manufacture of super-quality products. The building will be completed within a short time.

At the recent annual meeting, the board of directors of the Inland Rubber Co., Chicago, elected E. B. McKay vice-president and general manager. Mr. McKay has been associated with the Inland Rubber Co. for about a year. Prior to this affiliation he had been first vice-president of the Empire Tire & Rubber Corporation, Trenton, New Jersey, with which he had been associated in executive capacities for a period of sixteen years. Mr. McKay's long and varied experience has gained him a large and friendly acquaintance in the rubber industry.

W. D. McLeish, formerly with the New York branch of the Gates Rubber Co., Denver, Colorado, has been appointed district manager of the Chicago branch, with headquarters in that city.

G. O. Sebree has joined the forces of the Gates Rubber Co., Denver, Colorado, as advertising manager. Mr. Sebree has held a similar position with eastern companies and until recently was associated with the Firestone Tire & Rubber Co., Akron, Ohio. He is said to be especially active and energetic in handling national advertising campaigns.

THE RUBBER TRADE ON THE PACIFIC COAST

By Our Regular Correspondent

CAUTIOUS BUYING by tire dealers is reported on the Pacific Coast, but there is also noted a marked depletion of retail stocks which, on the first sign of renewed public interest, may result in a flood of orders. Buyers are not yet convinced that tire prices have touched bottom, although manufacturers declare that the next price revision will be more likely upward than downward. A little better inquiry for repair stock has been remarked, while in mechanical rubber goods and druggists' sundries dealers have of late been marking time, fearing to load up until satisfied that prices have touched bottom. Here, as in other

lines, retail stocks are quite low, according to manufacturers' advices.

LOS ANGELES AND VICINITY

T. W. McDevitt, president of the Pacific Cotton Exchange, Los Angeles, and K. M. Turner, have been attending a congressional committee hearing in Washington, D. C., on the proposition to grant Los Angeles official recognition as a long-staple cotton trading center. As the United States Cotton Futures Act antedates the development of long-staple cotton, there is no provision for the handling of Pima futures in the same manner as short-staple futures. Los Angeles cotton men hope to have this omission corrected, and, if successful, they predict a big revival in the cotton business in the Southwest, with Los Angeles as the main trading center. Half a million acres last year yielded a crop of \$75,000,000, and the potential acreage is estimated at 15,000,000. During 1920 the shipments through the port of Los Angeles (where there is a high density compress) were 7,107 bales, as compared with 500 in 1919.

The Goodyear Tire & Rubber Company of California, Los Angeles, passed the dividend on its 7 per cent preferred stock on December 31. The same action was taken by the directors of the Goodyear Textile Mills Company on the 7 per cent preferred stock. While both concerns slowed down in production two months ago, the management expects that by March 1 the "full steam ahead" order will be given in both factories.

The Samson Tire & Rubber Corporation, Compton, California, has been running steadily on full time and for several weeks has been working overtime six days a week, trying to catch up on orders. Soon the company expects to put on an all-night shift. Plans are being made for further enlargement of the factory.

George T. Bell, president of the Tire Construction Co., Los Angeles, has bought out the interest of Edward Harris, secretary-treasurer, and now owns the concern. The two started in business in 1914. Robert Brunner is the manager.

Rapid progress is being made in the construction by the U. S. Compression Inner Tube Company's plant at Burbank, California. The new factory, it is said, will mean an investment of \$1,000,000, employ nearly 1,000 men, and be in operation in about three months.

Plans are being launched by Boston and Los Angeles capitalists for manufacturing cord tire materials and plain tire fabrics on a large scale at Redondo, California. The concern, to be known as the Imperial Textile Co., contemplates an outlay of \$7,000,000 on mills in which 33,000 spindles will be run and on building a company town of 200 houses, with stores, theatre, etc., and its water works, electric plant, and drainage system. Arrangements have been made to take for several years the entire cotton crop of the C. & M. ranch, one of the largest in California.

The Automobile Tire Co. of California has been incorporated with a capital of \$150,000 by Harry A. Demarest, Edgar W. Demarest and Jacques A. Leuthold. The concern, which has its office and warerooms at 1006 South Broadway, Los Angeles, will do a general tire merchandising business.

Red rubber tube making is a new line for the Bell Rubber Co., Alameda and Seventh streets, Los Angeles, and several vulcanizers are being set up. The tube is laminated, and floats. The company also makes single and dual solid tires, and specializes on solid tire repairs.

An important change is being arranged by The B. F. Goodrich Rubber Co. for housing its Los Angeles branch. It now occupies a seven-story building on South Broadway, but within six months it plans to move into a concrete structure, one of the units of the Los Angeles Terminal Warehouse, that will afford 2½ times more space, direct railroad connection, elevators for loading supplies, a private street, and other advantages to enable it to handle its

rapidly growing business in tires and mechanicals. It is quitting retail service and supplying dealers wholly.

Guasti, House & Giulii, Perfection and Kelly-Springfield tire distributors, are building at Eighth and Merchant streets, Los Angeles, one of the finest tire supply houses on the Coast.

The Reliance Manufacturing Co., Pasadena, California, has bought the Coast rights to sell the retread molds of the Western Rubber Mold Co., of Chicago, and will distribute through the Rubber Products Machinery Co., of Los Angeles; the Vulcanizing Machine Co., of Seattle, and Waterhouse & Lester in Portland and San Francisco.

SAN FRANCISCO AND VICINITY

The large modern tire factory of the Coast Tire & Rubber Co., Oakland, California, which will start production shortly after the first of the year, is located on a six-acre site extending from East 12th street to East 10th street, and from 48th to 50th avenues, Oakland, California. It has a spur track connecting with the Western Pacific and the Southern Pacific main lines, which affords the company ample outlet for its product.

The main building occupies 60,000 square feet and includes receiving department, mill and calender room, fabric room, inner tube department, superintendent's and chief engineer's office, vulcanizing pits, finishing room and shipping department. Executive offices and power plant adjoin the main building. The equipment is of the latest type, arranged by an efficiency engineer to avoid lost motion and duplication of effort. The company will manufacture "Coast" cord and fabric tires, which are already well known on the West Coast.

H. G. Blanchard, who was associated with the United States Rubber Co. for fifteen years, and who was also consulting engineer for the Kelly-Springfield Tire Co., is now connected with the Coast Tire & Rubber Co., Oakland, California. Mr. Blanchard is recognized as one of the authorities in efficiency engineering and his ability will have ample opportunity and wide scope in his new connection.

The Standard Tire Co., Willoughby, Ohio, has opened a branch at 895 Post street, San Francisco, for the sale of Tiger-foot tires.

F. C. Newbauer has been appointed territorial sales manager in San Francisco by the Goodyear Tire & Rubber Co. Philip La Tourette succeeds Mr. Newbauer as manager of the Goodyear Oakland branch.

J. B. Magee, manager of the Southern California and Arizona branches of the United States Rubber Co., attended a recent conference in San Francisco of the company's coast representatives.

NORTHWESTERN NOTES

Seattle expects much benefit from the recent decision to reduce ocean rates on crude rubber from the Far East to Pacific Coast ports made by the Pacific Homeward Conference of Shipping Board operators in the Orient. In 1918 and 1919 Seattle led all other western ports in the importation of rubber, but last year trade fell off largely because of the high ocean freight rates. As the latter have been reduced from \$22.50 to \$12.50 per forty cubic feet, Seattle counts on a decided revival in its rubber imports.

J. V. Lynn has been appointed manager of the Seattle branch of the Spreckels "Savage" Tire Co., San Diego, California.

SOUTHWESTERN NOTES

The Ocotillo Products Co., Indianapolis, Indiana, which has a plant at Salome, Arizona, for the extraction of ocotillo gum, has shipped a carload of the material, described as having a rubber cellulose base, to Los Angeles to be used in waterproofing a large cement construction job. The company has just installed another large retort and is planning a considerable extension of the plant.

The Southwest Cotton Co., Phoenix, Arizona, has contracted for more than 20,000 acres of Pima Egyptian cotton in Imperial Valley at 60 cents a pound, and since the first of the

year has been buying in the open market, much to the relief of many planters who had been holding their cotton. Up to January 1 there had been no open market for Pima. Prices for mixed grades of short-staple cotton range between 12 and 13 cents a pound.

Henry Blackman, general manager of the Savage Tire Sales Co., Wellington, New Zealand, was a recent guest of the management of the Spreckels "Savage" Tire Co., in San Diego, California.

SALES MANAGER OF THE DOMINION RUBBER SYSTEM

JAMES MORRIS SALMON CARROLL, sales manager and a director of the Dominion Rubber System, Limited, Montreal, Canada, is one of the best-known and most popular sales executives in Canada, as indicated by his election to the presidency of the Dominion Commercial Travelers' Association, an organization of some 11,000 active members.



J. M. S. CARROLL

His life has been a varied and active one. Of Manx and Scotch ancestry, he was born at Ballarat, Australia, in 1877, and was educated at Douglas, Isle of Man; St. Malo, Brittany, and privately. After some years at sea, voyaging in sailing ships to many distant parts of the world, he revisited Western Australia, where he became connected with many important mining and construction enterprises, including Bunbury Harbor Works, Boulder Brown-Hill Railway, Menzies-Leonora Railway, Collic-Boulder Coal Co., etc. He also organized a sales agency specializing in mining and railroad construction supplies, explosives, etc., and visited mining fields in various parts of Australia, New Zealand, South and West Africa.

In 1902 Mr. Carroll went to Winnipeg, Canada, and joined the construction department of the Canadian Pacific Railway, going to Montreal in 1903. The same year, after a short period in the office of the vice-president of the Canadian Express Co., he joined the Canadian Rubber Co. of Montreal, Limited, as secretary to the general manager, also advertising manager. In 1905 he was transferred to the sales department where he has occupied the positions of Montreal branch manager, Quebec division manager, and, since 1914, sales manager.

Mr. Carroll is a director of the Canadian Rubber Co. of Montreal, Limited, Walpole Rubber Co., and the provincial sales companies of the Dominion Rubber System in the maritime provinces, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia. He is a member of the Montreal Board of Trade, Montreal Amateur Athletic Association, St. Andrews Society, and various Masonic bodies. He is devoted to outdoor sports and his clubs include the Engineers, Kanawaki Golf, Montreal, and the Circumnavigators, New York.

CANADIAN NOTES

THE UNITED SHOE MACHINERY CO. OF CANADA, LIMITED, has established a permanent representative in Calgary, Alberta, where supplies of parts of the stitchers will be carried in stock. This will mean better service to the repair man, as he can secure needed parts much sooner than formerly, when Toronto was the nearest supply point. A. L. Baldwin, Calgary, Alberta, is the

local manager, and will also call on the trade. He will personally inspect stitchers and see that they are in good order.

A discount of ten per cent was announced in Canada December 1 on all tennis and sporting goods, to apply not only on future sales, but also on those already placed for the coming season. Thus those who ordered before that date and who are entitled to the five per cent discount for early ordering retain this advantage. Although the drop in price is due in some extent to the slowness with which orders have come in, the change is mostly attributable to the falling off in the cost of materials.

The Dominion Rubber System (Ontario), Limited, recently received a gold medal from the Canadian National Exhibition for its display at the 1920 show. The company is to be congratulated on receiving this distinction.

The Dominion Rubber System (Ontario), Limited, held the annual "get-together" convention of its salesmen at the King Edward Hotel, Toronto, on December 29 and 30. It was attended by R. E. Jamieson, president of the company, and his assistants at the head office at Montreal, Messrs. Massie, Carroll, Rudolph and Morrisette. Ontario executive and department heads were present, together with 45 Ontario salesmen and representatives of all branches of the company. A big feature was the banquet and minstrel show, in which the humor was personal and of a decidedly rubbery flavor. It was a big surprise and a big success.

The new factory of the Tiger Tire & Rubber Co., Limited, Toronto, Ontario, Canada, began production the first week in January. The company is confident of a good season's business.

The new plant of the K. & S. Tire & Rubber Goods, Limited, 99 Paton Road, Toronto, Ontario, Canada, said to be the most modern tire plant in Canada, is just about completed, and is expected to be in operation in all departments by February 1. The company reports orders on hand from over a thousand dealers in Canada and has already sold the output for the coming season of 300 tires and 750 tubes per day.

A department has been installed for the manufacture of a full line of rubber goods for druggists, including the necessary hard rubber parts.

Legislation recently passed in Canada enables trade marks consisting of surnames, geographical names and marks of a descriptive nature, heretofore only registrable by an order from the Canadian courts, to be registered without the expense entailed by court procedure. The Trade-mark Office is empowered to grant registration of marks consisting of surnames, geographical names or adjectives implying descriptiveness upon the filing of evidence that such mark has acquired a secondary meaning and distinguishes the goods of the applicant.

This change of procedure should be of advantage to tire exporters having trade marks consisting of surnames which in the past have been rejected by the Canadian Trade-mark Office on grounds of non-registrability, since it would now appear that such marks can be registered without a great deal of difficulty.

Among the articles invoiced from the Vancouver Consulate General, Vancouver, British Columbia, for 1918, was rubber to the value of \$1,060; in 1919 similar invoices showed exports of 3,096,583 pounds of rubber, valued \$1,466,118.

Imports of gutta percha and india rubber manufactures at the port of Quebec in 1918 were valued \$109,249 as against \$191,444 in 1919. Of the latter imports, \$182,778 came from the United States and \$8,367 from the United Kingdom.

Rubber and its manufactures declared at the American consulates in the province of Quebec for shipment to the United States during 1919 were 2,008,262 pounds, valued \$214,484, as against 870,882 pounds, valued \$127,839, in 1918. Exports of rubber scrap to the United States in 1919 totaled 39,829 pounds,

valued at \$3,143. Rubber goods to the value of \$427 were shipped to the Virgin Islands, to which there were no shipments whatever in 1918.

R. W. Ashcroft, director of publicity, Ames Holden McCready System, Montreal, Canada, has been appointed assistant to the president of that company, in addition to his other duties.

W. Youngblud has been appointed sales manager of the tire department of the Ames Holden McCready System, Montreal, Canada, vice E. C. Kabel, resigned. Mr. Youngblud has been for some time tire sales manager of the Quebec division of the Canadian Consolidated Rubber Co., Limited, and is well known to the tire trade of Canada.

The Joseph Stokes Rubber Co., Trenton, New Jersey, U. S. A., has completed its new plant at Welland, Ontario, but it is not expected that the factory will be placed in operation for some time because of the present business depression. The new factory is 100 by 120 feet, one story, of timber, steel and concrete, with a power house measuring 50 by 50 feet. The plant stands on a tract having 651 feet frontage along the Grand Trunk Railway. The company manufactures hard rubber goods, its trade being principally in the automobile industry. W. J. B. Stokes, head of the Thermoid Rubber Co., is vice-president.

A NOVEL COTTON PICKING MACHINE

A NEW vacuum cotton-picking apparatus has recently been demonstrated in Imperial Valley, California, which the inventor¹ claims, and many who have seen it in operation believe, will not only save two-thirds the labor, but will also enable ginners to gin one-third more because the cotton is picked in a cleaner manner.

The principal feature of the cotton picker is a suction fan, at one side of which is an upright 5-inch pipe opening into a horizontal header provided with four openings, into which are fitted four lengths of 1½-inch vacuum hose 12 feet long, terminating in metal nozzles to be thrust into the cotton bolls. The fan discharges into a 5-inch pipe, five feet long, with a V-shaped terminal containing a butterfly valve at the apex, not unlike a damper in a stove pipe, whereby the sacks suspended on the terminal may be alternately filled.

This apparatus is mounted on the front of a small farm tractor and can be easily removed to allow the tractor to be used for general farm work. The fan is driven by belt from a large pulley on the shaft passing through the right hand driving wheel of the tractor and so arranged that the fan may be operated, whether the tractor is in gear or not. A pointed hood can be placed in front of the machine so that the latter can nose its way between rows of plants. The cotton picker is operated by two men walking ahead with the suction nozzles, while two others walk at the side of the machine, also carrying similar nozzles. A fifth man operates the tractor and looks after the filling of the sacks.

A "Utilitor" tractor with the cotton picking attachment weighs but 810 pounds, and is driven by a 4-horse-power motor. A patent has been granted for the pulley driving the fan, and application has been made for three other patents covering other features of the apparatus. An early type of the machine, now discarded, combined picker and self-driven car as a single unit.—Hand & Cavin, manufacturers, 400 North Avenue 26, Los Angeles, California.

"RUBBER MACHINERY," by Henry C. Pearson, should be in the library of every progressive rubber man.

¹ Captain K. F. Hand, 1526 Winfield Street, Los Angeles, California.

RUBBER TRADE INQUIRIES

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

(842) A reader desires the address of the manufacturer of molds for curing rubber hose in 500-foot lengths.

(843) A manufacturer requests the address of the maker of the rubber wood closet seats illustrated in our issue of April 1, 1920.

(844) An inquiry has been received for the address of the manufacturer of a machine for cutting washers.

(845) A correspondent desires information concerning sources of supply for rubber resin, particularly Pontianak resin.

(846) A European manufacturer desires the address of the present manufacturer of Wahl's shoe-varnishing machine described in our issue of December 1, 1920.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS

Addresses may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, D. C., or from the following district or cooperative offices. Requests for each address should be on a separate sheet, and state number.

DISTRICT OFFICES
New York: 734 Customhouse.
Boston: 1801 Customhouse.
Chicago: 504 Federal Building.
St. Louis: 402 Third National Bank Building.
New Orleans: 1020 Hibernia Bank Building.
San Francisco: 307 Customhouse.
Seattle: 848 Henry Building.

COOPERATIVE OFFICES
Cleveland: Chamber of Commerce.
Cincinnati: Chamber of Commerce;
General Freight Agent, Southern Railway, Ingalls Building.
Dayton, Ohio: Dayton Chamber of Commerce.
Los Angeles: Chamber of Commerce.
Philadelphia: Chamber of Commerce.
Portland, Oregon: Chamber of Commerce.

(34,192) A manufacturing company in Greece desires to be placed in touch with manufacturers of waterproof cloth for automobile covers.

(34,204) A mercantile firm in England desires to secure agencies for the sale of chemical products, including acetic acid, formaldehyde, sodium hyposulphite, lithopone, zinc oxide and barytes. Quote c. i. f. English and Indian ports. Payment to be made against documents at port of destination.

(34,244) A mercantile company in Canada desires to secure an agency for the sale of suspender fittings, including elastic or webbing. Quote f. o. b. Canadian port. Payment cash against documents.

(34,256) A manufacturer in Canada desires to purchase machinery for making rubber stamps, and rubber and other supplies for stamp making.

(34,266) A mercantile firm in Egypt desires to secure the exclusive agency for the sale in Egypt and Sudan of rubber tires. Quote c. i. f. Alexandria. Payment cash against documents on arrival of goods.

(34,276) A company of merchants in Argentina desires to secure an agency from manufacturers for the sale of suspenders and garters, and artificial leather or leather substitute for upholstery. Quote f. o. b. New York or c. i. f. Argentine port. Payment 30 to 90 days' sight draft, or other terms.

(34,280) An inquirer in India desires to receive information and quotations on rubber-covered wire and cable for house work, made in accordance with British standards.

(34,282) A mercantile firm in Bulgaria desires to secure an agency for the sale of rubber cloth for clothing and other purposes, and fountain pens. Quote c. i. f. Varna or Bourgas.

(34,295) A commission company in Madeira desires to secure agencies for the sale of pneumatic tires and suspenders. Correspondence should be in Portuguese.

(34,301) A firm of shoe merchants in England desires to purchase rubber-soled tennis shoes for men, women and children. The firm is prepared to give an order for 5,000 pairs assorted, cheap lines, for delivery in May, 1921. Quote c. i. f. ports of the United Kingdom. Terms: cash, packing to be included in cost.

(34,319) A merchant in the French West Indies desires to secure catalogs in French of articles which he plans to purchase, including rubber and leather fabrics for automobile hoods, insulated wire, inner tubes and repairing cement.

STEAM BAG FOR TIRE REPAIR

The "Perpetual" steam bag permits the application of heat to the inside as well as the outside of the tire during repair vulcanization. It is made of two sections of inner tubing protected by a



"PERPETUAL" TIRE REPAIR STEAM BAG

stockinette covering. All metal parts, such as caps, are of cold rolled steel,

and the fittings are standard Schrader connections and valves for use with steam. The construction of the head of the bag allows drainage of all condensation. Every pound of steam gives results, as the expansion of the bag makes it adjust itself to the exact shape of the inside of the casing. Connection is made to fit all molds so that it can be used with any equipment. It is made in 3½, 4, 4½, 5, 6, 7, and 8-inch sizes.—Perpetual Air Bag Co., 2103 South Michigan avenue, Chicago, Illinois.

THE SIVYER STEEL TRUCK WHEEL FOR PNEUMATICS

A cast steel wheel for pneumatic-tired trucks has been developed in a distinctive variation of the disk type. The metal is refined heat-treated steel, and the hubs are cast integrally with the wheels. Four triangular-shaped openings in the web serve to lighten the wheel and improve its appearance. One of these openings is located over the valve slot which permits of using the standard valve stem and the extra clearance allows room for any standard air-line connection when pumping the tire. The valve slot is opened through the outside edge of the wheel, permitting easy mounting or demounting the demountable rim. The rim is channel section, reinforced by cross braces.

Special attention has been paid to eliminate any features of design which would cause strains to be set up during the casting process. The result is an efficient-looking wheel, combining strength with light weight.—The Sivyier Steel Casting Co., Milwaukee, Wisconsin.

A NON-SKID ABRASIVE TIRE TREAD

A new non-skid tire, called the "Bearfoot," is being made in the recently opened factory of the Hobson Rubber Co., 1025 South Hill street, Los Angeles. Instead of using knobs, designs, and corrugations on the surface of the tread, as many manufacturers do in order to lessen the area of rubber on a slippery surface, or to get more or less of a vacuum grip on the road surface, the Hobson concern increases the coefficient of friction by incorporating a large quantity of abrasive material (finely graded sand) in the body of the tread. As the tread wears, the hard particles in it produce a surface not unlike sandpaper, which, it is claimed, securely grips the wettest or oiliest asphalt by presenting innumerable minute angles of tread that fit into the countless tiny depressions in the smooth road surface. The tread is built in layers much like camelback. Bearfoot retreads are also made in the same factory with a standard guarantee to retain non-skid qualities for 5,000 miles. A patent has been applied for on the process by which the abrasive material is distributed in the rubber so as not to cut the latter.

The Rubber Trade in Great Britain

By Our Regular Correspondent

ANENT LOW RUBBER PRICES

ALTHOUGH rubber manufacture generally is not brisk, and some departments are on short time, it cannot be said that the manufacturers show signs of worry and anxiety. This condition seems to appertain more particularly to the directors of rubber plantation companies who regard themselves as the victims of malign providence. Many of them can recall rubber at 12s. per pound, and they sadly refer to the good old times when two or three hundred per cent dividends could be paid. Of course, in this matter of shilling-a-pound rubber all producing companies are not in the same position and therefore some directors are more cheerful than others. This cheerfulness is largely limited to the companies which still have rubber to deliver at 2s. 6d. per pound for months ahead. To the suggestion that this may prove rather hard on the rubber manufacturers when they have to compete with firms buying at present prices the answer is that the manufacturers have had good earnings during the war and are not objects for commiseration. Of course, the manufacturers might reply to the effect that many of the rubber companies have also had their good times in the past.

There is an increasing tendency to reduce the price of rubber goods so as to fall in line with what is going on in so many other branches of trade, though it is only where such reductions are considerable that increased business is likely to result at the moment because everyone seems to be obsessed with the idea that the fall in the prices of goods generally has only begun and they are holding off until it has developed further.

The suggestion has been put forward in certain quarters that rubber plantation shareholders should form a sort of bank with £5,000,000 capital, presumably all paid up, to purchase the stocks of rubber in existence and thus force up the price. However, in view of the criticisms which have been leveled against the proposal, it is unlikely to mature. So far there has been no tendency on the part of buyers of forward rubber at what is now considered a high price to endeavor to get out of their commitments, though we may yet see something of the sort. In the light of what has been going on in certain American circles in regard to Lancashire cotton contracts, there seems room in many directions and in several branches of trade for emphasizing the importance of the sanctity of contracts if trade is to be conducted on a sound basis.

DUNLOP RUBBER CO., LIMITED

With regard to the shares of the Dunlop company, it will be remembered that a reorganization with increase of capital took place not long ago. This was largely the work of a well-known London financier. What has caused so much comment and consternation is that within a week or so of the allotment of the shares quoted at 30s. each the market price has fallen to about 17s., representing a paper loss of £10,000,000. Naturally rumors have been flying about as to the cause, about which more will probably be known before this is in print. On December 9 the Dunlop company's new shares issued at 30s. and 22s. 6d. paid were quoted at 8s., while the ordinary shares have dropped from 30 to 15s.

Dunlop shares are affected by other factors than the rubber market, as the recent developments and ramifications come into consideration. The shares of the Dunlop Rubber Cotton Mills in Lancashire, part of the Amalgamated Cotton Mills, have fallen a good deal lately, and then there seems to be a little bother about the American Dunlop company. The British Dunlop company has recently been called upon to assume the responsibility of providing the additional finances required to place the American company in a position to complete the construction of its

factory and to provide working capital. At the time of writing, the directors of the British company have not acceded to this request for aid, as they feel that the money should be found in America. However, it is understood that £1,000,000 have been remitted and further negotiations are pending.

FINANCIAL NOTES

Although the net profit of the India Rubber, Gutta Percha & Telegraph Works Co., Limited, stood at £73,299, rather more than a year ago, the final dividend has been passed for the time being, owing to the stringency of the cash position. An interim dividend of 2½ per cent has been paid and shareholders had every reason to expect that a final distribution would make 10 per cent for the year as in the five previous years. This withholding of the dividend, of course, means a greatly augmented carry-over, but it will have the effect of making shareholders in similar concerns apprehensive. Palmer Tyres, Limited, which is affiliated with the Silvertown company, though showing a reduction in profits, maintains its dividend of 12½ per cent. W. & A. Bates, Limited, of Leicester, with profits of £42,249, almost the same as a year ago, again pays 10 per cent.

The long deferred report of Vickers', Limited, covering the four years to the end of 1919, was issued on December 21. By amalgamation with other concerns the capital has risen from £7,000,000 to £20,000,000. A former statement promised an interim dividend announcement in the report, but to general surprise there is no mention of a dividend for 1920. In 1919, 11½ per cent was paid.

CATALPO

This is the trade name given to a colloidal form of Cornish china clay, this being the ordinary china clay prepared in a special way instead of the usual method of elutriation or washing by which the admixed particles of mica settle out by gravitation. The first patent was in the name of W. Feldenheimer, now of Catalpo, Limited, of 20 Holborn Viaduct, London, E. C., and a more recent specification, No. 153,343, is in the names of Dr. P. Schidrowitz, W. Feldenheimer and W. W. Plowman. In this case the clay is dried in the deflocculated condition, the dried purified clay being mixed to a paste with water containing 3 per cent by weight of anhydrous sodium carbonate. The water is then evaporated, leaving a clay which is said to possess special properties of accelerating the cure and improving the tensile properties of the rubber in which it is used. China clay has never been popular with British rubber manufacturers, though the "silicate" which came from America during the war period with a high reputation as a zinc oxide substitute was used to a considerable extent. The action of alkali as an accelerator now seems to be generally recognized, as the old use of lime and magnesia has been followed by patents utilizing caustic soda (Twiss) and now sodium carbonate.

OTHER CHEMICALS FOR THE RUBBER TRADE

Before the war there was only a very limited number of chemical firms which specialized in chemicals for rubber manufacture, though there were many more which supplied some particular chemical. Now, however, many new firms have entered the field, though they have but a superficial knowledge of the requirements of the trade. In striving to get business they probably resort to the usual procedure of cutting prices in order to oust the man who is in. When anything goes wrong with the manufactured goods the new dealer is adamant in his opinion that he has nothing to answer for and naturally in his ignorance he cannot make any suggestion of value whereby the harassed manufacturer can get at the root of his trouble. Of course, the particular chemical looked at with suspicion may be entirely guiltless, but the manu-

facturer cannot get out of his mind the fact that with the old source of supply he never had any trouble. Newcomers have not had things all their own way, however, because the conservatism of our rubber manufacturers has become almost proverbial, but all the same a good many changes have been made, and not always with the concurrence of the works or consulting chemist, and the change has not always proved advantageous.

THE DUNLOP PICTURE AGAIN

In the litigation between J. B. Dunlop and the Dunlop Rubber Co., Limited, concerning the company's pictorial advertisements of the former, the House of Lords has dismissed the appeal from the decision of the Irish courts to the effect that Mr. Dunlop be at liberty to issue the writ of summons and serve it on the company in London. This has reference to the use of the advertisement in Ireland.

BRITISH RUBBER TYRE MANUFACTURERS' ASSOCIATION

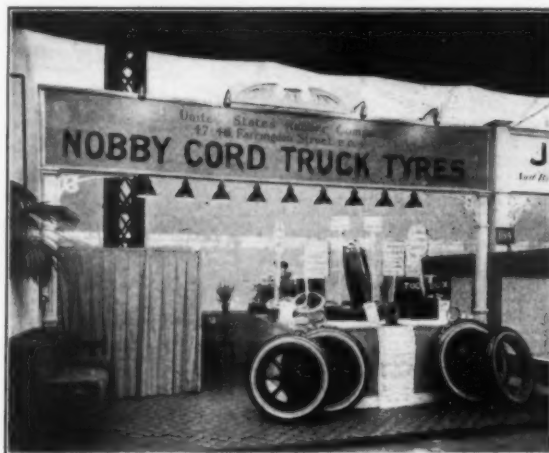
The fourth annual general meeting of the British Rubber Tyre Manufacturers' Association was held in London in December. F. W. Hinde, who presided, said a good deal on the acute question of imported tires, the value of which, he said, would probably exceed £5,000,000 in the current year. He predicted an even more vigorous export campaign on the part of the American manufacturers, besides the serious competition from France, Italy, and shortly from Germany, owing to the favorable exchanges of these countries. It was resolved that in future all labor questions be left to the India Rubber Manufacturers' Association to deal with. The following were reelected on the general committee for the ensuing year: Lieutenant-Colonel J. Sealy Clarke, F. W. Hinde, E. Healey, Alexander Johnstone, E. J. Mitchell, Reginald Moseley and J. Traxler, Mr. Bond also being elected in place of Mr. Huet, who had resigned. An illuminated address and a service of plate were presented to Mr. Johnstone, chairman from 1916 to 1919.

TRADE NOTES

The Federation of British Industries, an association of manufacturers of all sorts of commodities, keeps well to the fore in Parliament and press in looking after the business interests of its members. The fact that unity is strength in getting desired results is now generally recognized by masters and men alike, and this has come to be the ordinary procedure since the war. Included in the present Grand Council of the Federation as representing the rubber manufacture sub-group, are the following: Sir G. Charles Mandleberg, Hugh C. Coles, F. W. Hinde, Alexander Johnstone, P. H. Lockhart, Stuart A. Russell, C. T. Mabey and W. Bond. Also on the Grand Council are J. A. Fisher and Harold Jones, representing asbestos, and F. Lye, representing machine belting.

A meeting of creditors under the failure of British Rubber Manufacturers, Limited, was held in London on December 2. Founded as a war concern at Acton, near London, it made a profit for one year, but has been in difficulties since 1916. The total indebtedness is £110,149, and as the assets are valued at £45,160 the deficiency is £69,508. The compulsory winding-up order was obtained upon the petition of the Langham Steel Co., which claims to be a creditor for £53,407, for money lent to the company in the last three years.

The Peachey Process Co., Limited, which up to the present has had temporary office accommodations in Gerrard street, has now removed to new offices and showrooms at 83 Pall Mall, London, W. E. The premises are spacious and comprise general and private offices, board room, showrooms, etc., available for the inspection of manufactured products. Mr. Peachey, who has now removed to London, is succeeded at the Manchester College of Technology by A. R. Kaye, who during the later stages of the war was engaged on rubber work at the college. Formerly he was associated with Dr. Schidrowitz' laboratory. Mr. Peachey's lecture work in chemistry outside rubber is to be divided between Dr. J. K. Wood and Messrs. Craven.



THE LARGEST EXHIBIT OF GIANT PNEUMATIC TIRES AT THE LONDON COMMERCIAL MOTOR VEHICLE SHOW WAS THAT OF THE UNITED STATES RUBBER CO.

THE LONDON RUBBER EXHIBITION

The International Congress which will be held in connection with the Rubber Exhibition at London in June of this year will have as chairman Dr. Joseph Torrey, A. M., Ph. D., who has served so ably in this capacity on previous occasions. Although the rubber industry will be as usual the principal subject of interest, the scope of the congress will include other tropical products and industries and a special feature will be made of papers dealing with cocoa and with vegetable oils.

The vice-chairmen, who are devoting their attention to arrangements for papers concerning the industries of which they have made a special study, include Dr. Philip Schidrowitz, Ph. D., F. C. S., and H. H. Vasconcellos, who will assist Dr. Torrey with the organization of the Rubber Section, Mr. Vasconcellos being specially active in the interests of Brazilian products; Emile Alleaume of the Portuguese Trade Corporation and Hamel Smith, editor of *Tropical Life*, who are looking after the Cocoa Section; E. Richards Bolton, F. I. C., F. C. S., and Emile Baillaud, of the Colonial Institute of Marseilles, who are working to insure the success of the Vegetable Oils Section.

Papers will be read by leading scientists and other experts from all parts of the world. It is believed that the 1921 congress will be even more largely attended than its predecessors by an internationally representative gathering of scientists, producers, manufacturers, merchants and financiers. Among those who have already promised to read papers are:

Edmond Leplae, Director of Agriculture for the Congo. Subjects: The Cultivation of Oil Palms in the Belgian Congo. The Cultivation of Hevea in the Belgian Congo. The Cultivation of Cotton in the Belgian Congo. Auguste Chevalier. Laboratoire d'Argonomie Coloniale, Paris. Subject: Progress de la Culture de l'Hevea en Indochine. Dr. P. J. S. Cramer, Amsterdam. Subject: New Species of Hevea Cultivated in the East. E. W. S. Ventress, A. M. I. M. E. Subject: The Amazon and its Vegetable Oils, etc.

Other speakers who have not yet announced their subjects include Henry P. Stevens, M. A., Ph.D., F. I. C.; Dr. André Dubosc, Laboratoire de Recherches, Bapaume-les-Rouen; Dr. O. de Vries, Director of the Central Rubber Station, Buitenzorg, Java, all connected with the Rubber Section; A. W. Knapp, B. Sc., research chemist to Cadbury

Brothers, in the Cocoa Section; E. Prud'homme, Directeur du Jardin Colonial, Nogent-sur-Marne, and M. T. Dawe, F. L. S.

All persons interested in the congress are cordially invited to volunteer to read papers or to make suggestions as to subjects. All communications concerning the congress (Rubber Section, Cocoa Section, and Vegetable Oils Section), should be addressed to Dr. Joseph Torrey, A. M., Ph. D., Northwestern Rubber Co., Litherland, Liverpool, England.

BRITISH PADS FOR SOLES AND HEELS

Another variation of the attachable rubber heel and sole pad in several sections is of British manufacture and is now marketed under the name "Phillips' Rubbers," the former name being "Phillips' Military Soles and Heels." Thin rubber plates, two for the sole and one for the heel, with raised studs, keep the feet dry, give a smooth, pleasant tread, and do not slip, owing to the corrugations on the surface of the studs. "Phillips' Rubbers" are made in sizes to fit men's, women's, and children's shoes, and the manufacturer asserts they are meeting the approval of the British public.—Phillips' Patents, Limited, 142-146 Old street, London, E. C. 1, England; George A. Slater, Limited, Ontario street East, Montreal, Quebec, Canadian distributor; Frank L. Slazenger, 12 East 43d street, New York City, wholesale distributor.

ENGLISH "PUNCTURE-PROOFED" INNER TUBES

A rubber inner tube, proof against punctures, which is not semi-solid nor "rubbish-filled," but is a pneumatic tube, is the new product of a British company. A thin film of solution, whose ingredients are not divulged, is held by the air pressure to the walls of the tube and in the event of the tube being pierced, a minute portion of this solution is forced into the aperture, effecting an immediate and permanent repair. The makers claim the tube has stood the most drastic tests, both in the factory and in actual use.—Puncture Proofed Tubes, Limited, Avenue Chambers, Bloomsbury, London, W. C. 1.

A GERMAN RUBBER SOLE-PROTECTOR



PROTECTOR
KANZLER SOLE

on-the-Main, Germany.

A rubber sole-protector has recently been placed on the German market, intended to protect the soles of fine shoes from wear and moisture. In shape it follows the sole of the shoe, being cut out in the center, thus giving the pad a sort of horseshoe shape; it is corrugated to prevent slipping, and beveled at the edges, so that it is almost invisible when worn. It is attached by means of small nails driven into the sole through holes provided in the protector. A shoe pad of this sort is not so heavy to wear nor so heating to the foot as an all-rubber sole, while affording equal protection. — Kanzler Gummi-Gesellschaft Otto Baumann & Co., 16 Niedenau, Frankfurt-on-the-Main, Germany.

TETRALIN

TETRALIN AND OTHER HYDRONAPHTHALENES, OF WHICH FIVE are theoretically possible, have been patented as solvents for rubber, sulphur, liquid or solid hydrocarbons, natural resins, etc. Tetralin is miscible in all proportions with spirits of turpentine, rosin oil, coal tar, mineral oil distillates, trichloroethylene, amyl acetate, etc. Essence of tetralin is a mixture of tetralin and cyclohexanol.—Tetralin Gesellschaft mit beschränkter Haftung, Behrenstrasse 5, Berlin W. 8, Germany. German patent No. 320,807.

THE RUBBER TRADE IN EUROPE

By a Special Correspondent

FRANCE

THE DEMAND for American tires has almost completely disappeared owing to an increase in the French production and an improvement in the quality of the product. It is believed that the demand for American tires on the French market will be very slack so long as exchange rates continue as at present, as a French product can be offered at from 20 to 30 per cent below that of the American manufacturers. A slack demand for automobiles has also contributed to the present situation in the tire market. It is stated that practically 30 per cent of the cars actually manufactured in France remain unsold at the present time.

BELGIUM

In 1919, Belgium imported 5,617,484 kilos of crude rubber, valued 37,958,853 francs. During that year exports of crude rubber were 1,569,696 kilos, valued 10,177,110 francs. One kilo equals 2.2 pounds; the value of the franc, which in normal times approximates 5.13 to the dollar, in 1919 fluctuated between 8 and 16, averaging 9 to the dollar. Of rubber manufactures, 1,824,472 kilos of tires, valued 25,251,192 francs, were imported into Belgium and 561,794 kilos, valued 12,382,593 francs, were exported. Of other manufactures of rubber 770,422 kilos, valued 8,390,104 francs, were imported and 44,335 kilos, valued 607,349 francs, were exported. Imports of machine belting, including rubber, leather and similar materials, were 624,604 kilos, valued 10,006,800 francs, and exports were 22,809 kilos, valued 499,321 francs. Textiles impregnated with rubber for making card fillets were imported in the quantity of 85,406 kilos, valued 1,328,780 francs, and 262 kilos, valued 3,000 francs, were exported.

NORWAY

The sample fair of Norwegian products held at Christiania, Norway, in the early autumn, was the first of the kind ever held in the country and very satisfactory results were obtained. The exhibition was held with a view to popularizing Norwegian manufactures at a time when the importation into Norway of numerous articles was prohibited. The group of exhibitors that has had the largest return in business from the fair is that comprising leather and rubber goods.

GERMANY

The Mittelland Gummiwerke Akt., Ges., Hanover, has increased its capital by 300,000 marks, bringing it up to 4,500,000 marks. According to the report, results during the past year were satisfactory.

The Continental Caoutchouc & Gutta Percha Co. some time ago took up the exploitation of the Ruhrkohlen-gewerkschaft Alter Hellweg. It is understood that 10,000,000 marks have been reserved for this purpose. In this way the company will secure for itself the necessary coal, for it may keep one-third of the coal output for its own consumption.

The death is reported of the founder of the firm of Curt Schellbach rubber goods factory, Seiferitz-Meerane (La.). Curt Schellbach started on a small scale and built up a concern which now has branches in all the chief cities in Germany as well as representation in Turin, Milan and Constantinople. Fr. Herrmann will now direct the business.

The Vereinigte Gothania Werke, Akt.-Ges., Gotha, manufacturing hose, has decided to raise its capital from 4,500,000 to 6,500,000 marks.

The Kabelwerk Reydt, Akt.-Ges., Reydt, declared a dividend of 30 per cent at its recent general meeting. The capital will be raised from 10,000,000 to 24,000,000 marks.

The New York-Hamburger Gummiwaren Compagnie has doubled its capital, which now is 4,002,000 marks.

Farbenfabriken, formerly Frederick Bayer & Co., Leverkusen, has stopped the manufacture of synthetic rubber. The enormous

stocks of crude rubber on the market and the high cost of preparing the synthetic article in connection with the shortage of coal make competition with the natural product impossible for the present.

The Braunschweiger Gummiwarenfabrik Richard Hagemann, Braunschweig, has been dissolved. The owner, Richard Hagemann, has taken over for his business, Brunonia-Gummiwerke Richard Hagemann.

The Treibriemenfabrik Woide G. m. b. H., Breslau, manufacturer of belting, has been dissolved and the owners have begun a new business known as the Breslauer Treibriemenfabrik Woide & Diebison, at Breslau.

The firm of August Knab, wholesale house for rubber bed sheeting and oilcloth, has moved from Nürnberg, where it was founded in 1888, to Bad Reichenhall. The new business has been greatly extended.

The Hamburger Gummi-Vertriebs Gesellschaft m. b. H., Hamburg, has been dissolved.

H. Schwieder Sächs, Gummi-und Gutta-perchawarenfabrik, Dresden, has raised its capital by 3,500,000 marks. This is the Dresden branch of the Akt. Ges. Vereinigte Berlin-Frankfurter Gummiwaren Fabriken, Berlin, which is also the owner of the first concern.

W. Goy & Co., Hannover-Linden, handle the sales for the Mittelland-Gummiwerke A. G., formerly Hannoversche Aktien-Gummiwaren-Fabrik.

NEW FIRMS

Gesellschaft der echten Marks-Prothesen, A. A. Marks m. b. H., has been founded at Frankfort-on-the-Main. The aim of

Weinheimer Gummi-und Gutta-perchawaren-Fabrik, Weisbrod & Seifert, m. b. H., Weinheim. Manufacture and sale of rubber and gutta percha goods.

Duerener Draht-und Kabelindustrie, Düren. Sale of wires and cables.

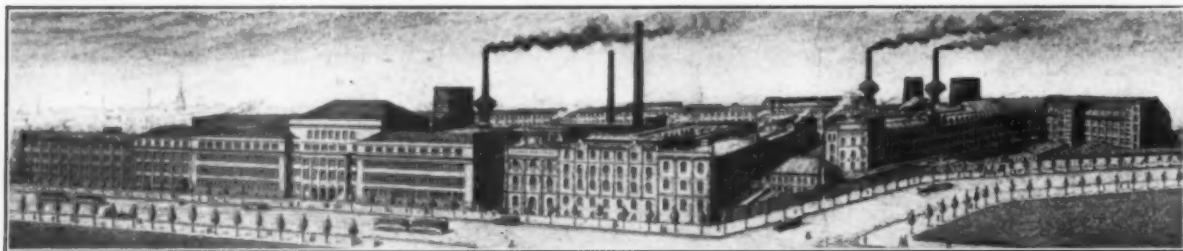
Gummi-Handelsgesellschaft, Ferdinand Bauwens, m. b. H., Frankfort-on-the-Main. Wholesalers in tires, repair material, rubber solution, necessities for vulcanizing.

GERMANY'S LARGEST RUBBER WORKS

One of the largest rubber manufacturing companies in the world is the Continental Caoutchouc & Gutta Percha Co., Hanover, Germany, which is shown in the accompanying illustration. Starting in 1872 with 200 men and a very modest capital, it has grown to be the largest concern of its kind in Germany. Its products are varied, embracing almost everything made of rubber except footwear. The attention of the firm is directed chiefly to the manufacture of soft rubber goods, and for the most part for technical purposes, that is, hose, belting, packing, etc., also rubber cloth, balloons, toys, balls and tires for bicycles and automobiles. Its "Continental" pneumatic tires have been famous in Europe for many years.

The Continental Caoutchouc & Gutta Percha Co. is cosmopolitan in its business transactions, doing business all over the world, being, in this particular, the greatest German firm in this special branch.

The late Adolf Prinzhorn, who was well known and admired in the United States and England, was for thirty years managing director of the "Continental," resigning from active service in



PLANT OF THE CONTINENTAL CAOUTCHOUC & GUTTA PERCHA CO., HANOVER, GERMANY

this enterprise is the manufacture of original Marks prothesen or artificial limbs, with genuine Marks feet. The company, which recently patented designs for rubber feet, has also taken over the orthopedic department of the Antiplanwerke Alfred Stiefel. The head of the new concern, which is capitalized at 3,000,000 marks, is Alfred Stiefel.

Firma J. Friedrich Eckrich, Karlsruhe. Wholesale dealer in rubber goods.

Bayerische Gummi-und Asbestindustrie, Hans Maier, Munich, Ri-Pneu-Nagelsicher Gummiwerke, G. m. b. H., Karlsruhe. Bicycle tire covers.

Prussig Gummi-Industrie Riemann & Co., Königsberg, Preussen.

Kabelwerk Nürnberg Aktiengesellschaft, Nürnberg. Capital, 18,000,000 marks. Directors, Gustav Wunderlich and Max Krüninger.

Fettweis & Freitag, Düsseldorf. Manufacture of rubber goods. Maerkisch Gummiwaren-Fabrik G. m. b. H., Berlin. Manufacture of rubber goods.

Hannoversche Gummiwerke "Excelsior," Akt. Ges., Hannover-Limmer. To manufacture and trade in sporting goods of all kinds.

Selhausen & Co., Duisburg, wholesalers in rubber heels.

Deutsche Gummiwaren-Vertriebs-Gesellschaft m. b. H., Frankfort-on-the-Main, wholesalers in all kinds of rubber goods.

1909. However, he continued to give the firm the benefit of his experience as a member of the committee of inspection.

The illustration shows a late picture of the factories, with the new administration building in the center front.

VULCANIZATION AND DEPOLYMERIZATION

The improvement of rubber by hot vulcanization is stated by E. Seidle in *Gummi-Zeitung*, 1920, 34, 797-798, to be accompanied by a less marked opposite effect of depolymerization which is concealed by the vulcanizing effect. Rise in temperature increases the rate of vulcanization more than that of depolymerization, consequently vulcanization at higher temperature to the same percentage of combined sulphur relatively increases the beneficial effect.

FOREIGN TARIFFS SWITZERLAND

A decree issued by the Swiss Federal Department of Public Economy dated November 10, and in force from December 1, 1920, provides that the following goods may not be exported from Switzerland, except under special license issued by that department: india rubber and gutta percha without internal layers of tissue or metal, blocks, balls and negrohead (raw caoutchouc), so-called "patentplatten" not vulcanized; waste of india rubber and gutta percha; rubber tires (inner tubes and covers) for

motor cars and for cycles, with or without internal layers of fabric or metal; threads for elastic tissues.

NEW ZEALAND

According to the *British Board of Trade Journal*, December 16, 1920, X-ray gloves, of lead-rubber covered with leather may be imported into New Zealand duty free with the exception of a "primage" duty of 1 per cent ad valorem which is levied on certain goods on importation, irrespective of whether the goods are otherwise liable to duty or not.

CZECHO-SLOVAKIA

The government of Czecho-Slovakia has introduced a so-called "manipulation" fee, which is a tax payable on all goods exported from Czecho-Slovakia. On india rubber goods this tax amounts to 2 per cent of the invoice price.

RUMANIA

The exportation of india rubber, gutta percha and vegetable gums from Rumania is prohibited by a decision dated November 25, 1920, and published in the "*Monitorul Oficial*" of November 27.

TRINIDAD

According to the new customs tariff for the British colony of Trinidad, which was recently passed by the Legislative Council of that colony, importations of balata, chicla and raw rubber are exempt from duty.

MALTA

A duty of 15 per cent ad valorem is levied on india rubber and its manufactures imported into Malta, according to the Import Duties Revision Ordinance No. 14 of 1920 dated November 19, and, according to the *British Board of Trade Journal*, December 16, 1920.

MEXICO

A presidential decree of November 29, 1920, published in the Mexican *Diario Oficial*, October 25, 1920, fixes the duty on cable, with core of rubber filaments covered with wool or vegetable fiber, for use on airplanes to lessen shock on landing (gross) at .05-peso per kilo (one kilo equals 2.2 pounds; one peso \$0.44 normal). Solid rubber tires, fixed to rims or hoops of iron (gross) are dutiable at .50-peso per kilo.

AUSTRALIAN NOTES

Australia imported rubber manufactures to the value of \$5,351,373 in 1919, as against \$3,812,450 in 1918. Of imports, including india rubber, leather, and manufactures thereof, the United Kingdom contributed \$202,063; other British possessions, \$2,007,495; the United States, \$4,622,544; and Japan, \$56,129. Exports of india rubber and its manufactures from Australia in 1918-19 were valued at \$1,008,567, as against \$457,010 in 1914-15.

SOUTH AUSTRALIA

The overseas import trade in rubber and its manufactures into South Australia for the year 1917-18 was valued at \$211,653, as against \$281,736 for the calendar year 1913. Similar imports in 1918-19 increased to \$642,578. The United States furnished 89 per cent of the rubber belting, the United Kingdom supplying the remaining 11 per cent. Of the total importation of rubber tires, 40 per cent came from the United States, 26 per cent from Canada, 17 per cent from France, 11 per cent from the United Kingdom, the balance from Italy and Japan; all other rubber goods, 69 per cent from the United Kingdom and 28 per cent from the United States.

NEW SOUTH WALES

Imports of india rubber and leather and manufactures thereof into New South Wales are grouped under one head for 1918-19, therefore exact figures of rubber imports are not available, but figures under the combined heading were given at \$4,264,065, as against similar importations to the value of \$2,582,198 in 1913.

The outgoing trade of New South Wales for the fiscal year ending June 30, 1919, included india rubber and its manufactures to the value of \$389,997.

AUSTRALIAN TIRES PROTECTED

Australian tire makers enjoy a protective general tariff on tires and tubes of 40 per cent, and as a result Australians have to pay 80 per cent more for tires than Americans pay. In the island continent only 60,000 motor cars are registered, whereas based on England's per capita there should be 200,000. Cheaper tires, it is claimed by motorists in the Antipodes, would bring more cars, and they state that the protection which Australian tire makers have had for twenty years is no longer needed.

NEW ZEALAND TIRE MARKET

In the importation of rubber tires and tubes into New Zealand imports from the United States in the first nine months of 1920 were \$2,330,723, from Australia \$1,130,809, from Canada \$902,624, from the United Kingdom \$580,427, France \$710,957, Italy \$495,833, Japan \$4,205, and from Belgium \$7,168. The above figures are for the fair market value in the country whence the goods are exported, plus 10 per cent. This means that freight charges, insurance, profits, adverse exchange rates, etc. must be added if the actual cost of the business is to be ascertained, bringing the actual cost to the consumers to \$12,500,000 annually. Motor tires, tubes, and covers enter New Zealand duty free from all countries, with the exception of the 1 per cent war tax that is collected on all imports. The adverse exchange rate and the tight-money market will tend to reduce the demand in New Zealand for motor cars for a few months, but there should be a growing demand for motor trucks and tractors for they are greatly needed to handle the business of the country.

THE RUBBER CRISIS IN BRAZIL

The Amazon region, the rubber country of Brazil, is going through one of the worst crises in its history. According to latest reports, not only has production of rubber fallen off by 22,000 tons, but exports for the first ten months of 1920 show a shrinkage of 7,013 tons. Both Europe and America show decreased imports. The price of hard fine Pará has dropped 40 to 50 per cent since January, 1920, and rubber is being shipped at a loss. The situation is so serious that it has been openly said that if the Government failed to aid the suffering states there would be nothing left but to suspend payments.

In an appeal to the Federal Government for support, Amazon rubber interests give the chief causes of this condition as being eastern competition and American speculation working for lower prices. At a session of the Chamber of Deputies, during consideration of the critical situation, three members bitterly denounced the activities of United States rubber interests in the Amazon region. It was charged that a "rubber trust" of the United States was driving down the price of rubber, forcing the native planters out of the field and then purchasing the plantations at very low prices. After stating that the difficulties in the Brazilian rubber industry began in 1914, when the Great War left North American buyers alone in the field, Deputy Salles added:

"Our nationality is threatened by purchase in small pieces. The rubber planter, losing interest, is abandoning the plantations which the Americans are acquiring at infinitesimal prices, becoming lords of our soil."

Telegrams from commercial bodies of the district affected and many local newspapers all make the same charges and condemn the monopolistic activities of the so-called American rubber trust.

BULGARIAN IMPORTS OF RUBBER, GUTTA PERCHA AND MANUFACTURES THEREOF in 1919 were valued 1,144,727 leva, as against 895,291 in 1912. Normally one lev equals \$0.193, but at the end of 1919 it had depreciated to \$0.02.

The Rubber Trade in the Far East

By a Special Correspondent

MALAYA

THE RUBBER SLUMP is having a rousing effect on the people who are beginning to think hard about the causes of the situation and means for remedying it. Few are content to leave things at restriction merely. They now realize there are other factors to be dealt with besides speculation and manipulation and the opinion is expressed that there has been a lot of careless spending in the past owing to the comparatively large and easy profits that were reaped up to quite recently. Because of the rapid growth of the industry and the great need for planters, it is claimed that many men were employed at high salaries as planters who really knew very little about the matter. Some learned their business and others did not. Now is the time, it is urged, when rigid economy must be practised, but economy born of efficiency, be it understood.

ECONOMIC CONDITIONS IN STRAITS SETTLEMENTS AND DUTCH EAST INDIES

Trade Commissioner John A. Fowler, in his monthly cable from Singapore giving the current economic conditions in the Straits Settlements and Dutch East Indies, states as of January 12, that the financial situation in both countries has been growing worse. The Chinese have been and are still holding for better prices large stocks of export products. In spite of the fact that export prices of such raw products generally are ruling lower than at the same period last month, exports are decreasing, as neither Europe nor America is actively in the market at present. Consequently, export stocks have been accumulating, particularly of rubber and tin. Among the Chinese the crisis will probably come during the second week in February following the Chinese New Year, which this year falls on February 8, and it is feared that there may be a number of serious failures during this period. It is a long-established custom among Chinese to settle their outstanding accounts on their New Year.

With the above exception there is practically no speculation in anything at the present, and as the western banks have been very cautious it is expected that any failures which may occur will not disastrously involve well-established houses, even though the export market is badly demoralized.

THE DUTCH EAST INDIES

An interesting letter, addressed to the International Association of Rubber Planters, was recently published in a local paper, the theme of which is: "Rubber planters unite to control prices, for if you don't look out, the American will get you."

After sketching the development of rubber culture from the start, when the Americans had not yet appeared upon the scene as planters, and showing how cost price and sale price approached each other until now they almost meet and sometimes even cross, the writer looks around for the buyer and sees that the Americans have the most to say. He draws attention to the fact that when Americans finally took up on a large scale planting in order eventually to make themselves independent of other rubber producers, many laughed. But he considers that Americans should not be laughed at too soon. They should be seriously taken and —watched closely.

His own observation showed him that in spite of the laughter Americans continued to plant and also have their own buying agents in the land of production. These agents buy futures, continually make up import and export statistics for the main offices in America, and the agents of different factories seldom buy at the same time, but if they do they buy at the same price without competition among themselves.

The writer is also of opinion that people concerned do not pay

enough attention to the fact that the Goodyear company has offered 24 million guilders (according to others 19 million) for the estates of the Rotterdam Deli Inpij, which planters claim are not worth one-fifth of the above sum. A bona fide planting company, it is said, would suffer eternally from such a bargain, but the American manufacturer with an eye to the future, when he will rule the market, can afford such stunts. If planters keep on treating such matters lightly, the time is not far off when one by one they will be swallowed up by the land-hungry American manufacturer.

Therefore, it is hoped producers will awake before it is too late, unite, regulate the output and successfully combat the American menace.

By the way, shortly after the above letter was published, it was reported that British planters were planning, in cooperation with Dutch producers, to combine in order to control the sale and output of rubber.

REDUCTION OF THE RUBBER OUTPUT

It has been pointed out by Dutch rubber experts that a general reduction in the output of rubber according to a uniform scheme would be neither judicious nor fair to all rubber estates, particularly estates which are just beginning to produce and estates which, through climatic or soil conditions or because of former error, are now backward. It has been proposed to fix a certain maximum reduction per acre and to ask the Government to prohibit free exportation and to introduce an export license system for rubber.

In certain rubber circles it is doubted whether the measure to reduce the output of rubber will succeed.

RUBBER NOTES

It is reported that the Government will open a new gutta percha estate on the East Coast of Sumatra, as continuation of the experiment made in Atjeh.

According to a recent report, the amount of rubber now stocked on the East Coast of Sumatra is estimated at ten thousand tons.

The Anglo-Dutch Plantation Co. proposes to increase its capital by £2,500,000.

Dr. E. R. Hallauer, appointed rubber chemist at the Middle Java Experiment Station, took up his work in November last.

The chief export product of the European estates in the Lampong districts is rubber. There are about 13 estates, of which two are not yet productive. The oldest plantations are about 10 years old. Of the 13 estates, two are English, three German, one Norwegian and the rest Dutch.

At the end of 1919 there were 117 rubber companies operating on the East Coast of Sumatra, of which there were:

Companies	Nationality	No. Estates
39	Dutch	83
25	Dutch East Indies	35
37	English	69
2	American	6
1	French	2
4	Belgian	5
1	German	3
1	Straits	1
1	Danish	1
1	Hawaiian	2
5	Japanese	5
117 Totals		212

Besides these, there were 19 tobacco companies with 31 estates also planted to rubber.

The total area was over 140,000 hectares planted to rubber, of which half was productive.

During the first quarter of 1920, Tapanoei, Sumatra, exported to foreign countries 188,219 kilos of rubber and 4,446 kilos of wild gutta percha. Exports to Java included 346,414 kilos of plantation rubber.

A report from Medan states that the German explorer, Paul Grätz, is establishing a glass factory on the East Coast of Sumatra, for the purpose of making latex cups. It is understood that plans have reached a far advanced stage and that machinery has already been ordered from Europe.

GUTTA PERCHA

The Government gutta percha plantation at Tjipetir was considerably extended in 1919 and at the end of that year covered an area of 1,309 hectares (one hectare equals 2.47 acres). The crop of leaves was almost as high as in 1918, and amounted to 3,512,000 kilos from which about 74,000 kilos of gutta percha were extracted. This is a better yield than was obtained in 1918, when 67,593 kilos were obtained from a slightly greater amount of leaves. The price was better, too, being 7.50 guilders (one guilder equals \$0.40) per kilo, against about 6.68 guilders in 1918.

A wild gutta percha variety, known as "gutta merah," is traded in at Bandjermassin. Prices during 1919 ranged from 350 to 450 guilders per picul (133½ pounds), while at Pontianak the pure product brought as much as 500 guilders per picul. The lowest quality obtained 100 guilders per picul. It is said, however, that speculation was the cause of these high prices.

RUBBER GAMBLING IN SINGAPORE

It seems that the laxity of the Singapore Rubber Association in the matter of rules affecting brokers, is unintentionally encouraging a dangerous amount of gambling. It has been pointed out that for the last six months prices here have been from four to ten cents above the parity of London and New York and that the continuation of such a state of affairs will result in destroying the local market. The statement was made that in one case a tender for five tons of rubber passed through the hands of 287 persons before it finally reached a bona fide buyer.

Another allegation is that Singapore standard quality is being thoroughly discredited, because the rubber passes through so many hands in the gambling game that by the time it is ready to be shipped it is no longer worthy the hall-mark standard.

NETHERLANDS GUTTA PERCHA CO. EXPANDS

Netherlands Gutta Percha Co., The Hague, Holland, and Singapore, Straits Settlements, the first manufacturer of rubber goods in East Indies, has prepared plans for a tire manufacturing plant to be added to its factories at Singapore. The new building will be two stories, 80 by 400 feet, and is to cost \$300,000. The work of construction will begin as soon as the materials and equipment have been purchased in this country and shipped via San Francisco. Some time ago Ed. Koppeschaar, assistant manager, visited a number of manufacturing plants in this country to ascertain the type of building best suited to the purpose. Besides the factory at Singapore the company has offices and agencies at Batavia, Soerabaya, Shanghai, Calcutta and other important cities in the Far East. Among its manufactures are belting, hose, packing, hard rubber goods and tires.

According to the *Soer. Hbld.*, a local newspaper, the Netherlands Gutta Percha Co., The Hague, will build a factory at Soerabaya for the purpose of making electric cables, and other articles. The factory will probably be in working condition by October, 1921. The Netherlands Gutta Percha Co. has a rubber factory at Singapore and rubber plantations in Java.

CEYLON

The condition brought about by the slump in the rubber market is becoming more and more serious. It is said that some half-dozen rubber estates have already been compelled to close down and pessimists are wondering how many will follow suit. Daily the number of estates that are cutting down European staffs and

discharging coolies is growing, and it is feared that there will be trouble on account of the large number of coolies left without employment and means of subsistence. It is reported that about 150,000 coolies will be without work and will either have to be repatriated or given help in Ceylon. The repatriation scheme is not generally approved and it has consequently been decided to appeal to the Government to give the coolies relief work.

The Government has already proposed financial aid for tea and rubber estates with the stipulation that only deserving estates would be helped, worthless ones to be left to their own devices. Of course, the question as to what constitutes a worthless concern has come in for a lot of discussion.

Rubber planters at first had reason to fear that the government was more anxious about the tea estates than about rubber. However, a Central Committee of six members has just been formed which, being thoroughly representative of all tea and rubber, would coordinate such interests, thus obviating the fear of competition for government aid. The Chamber of Commerce, the Estates Agents' Association, the Planters' Association and the Low-country Products' Association are represented.

The new Central Committee will consider the desirability of accepting the financial help offered by government and make a counter proposal if found necessary.

It is now definitely known that the Ceylon Government has offered tea and rubber estates a loan up to a limit of rupees 10,000,000 (one rupee equals \$0.324 United States currency), which has been somewhat reluctantly accepted by the Ceylon Chamber of Commerce. A loan board is to be formed which will approve the estates to be aided.

It is reported that the Cicely Rubber Co. has followed the example of the Vallambrosa and has stopped paying dividends for the present. The companies mentioned are two of the oldest and strongest British rubber concerns. The Cicely had paid a dividend of 60 per cent over 1914-15, 120 per cent over 1915-16, 140 per cent over 1916-17 and 75 per cent over the two following years. During the first part of 1919-1920, good profits were made but as the company had at the time decided to extend its planted area considerably, the profits were kept back and all cash is now needed for the upkeep of the non-producing lands.

AFRICAN NOTES

French West Africa includes the districts of Dahomey, French Guinea, the Ivory Coast and Senegal. Exports of rubber from the three last-named districts during the past three years are tabulated below:

	1917		1918		1919	
	Metric Tons	Value	Metric Tons	Value	Metric Tons	Value
French Guinea	733	\$707,373	709	\$683,730	682	\$658,389
Ivory Coast	311	300,152	249	240,406	76	73,620
Senegal	262	252,871	327	315,994	55	52,890

The above table was computed on the normal value of the franc, \$0.193.

BRITISH WEST AFRICA

British West Africa includes the Gold Coast, Nigeria and the Cameroons. In 1919 exports of rubber from the Gold Coast totaled 721,588 pounds, valued \$163,678, as against 1,391,097 pounds, valued \$277,391 in 1918. Rubber exports from Nigeria in 1918 were 157 metric tons, valued \$95,700; in 1919 exports of this commodity increased to 398 tons, valued \$213,632. The normal value of the English pound sterling \$4.866, was used in computing these values.

ALGERIA

Algerian foreign commerce for the first six months of 1919 included imports of 211 metric tons of rubber and gutta percha goods to the value of \$893,204. In the corresponding period of 1920, similar imports totaled 837 tons, valued at \$3,899,565. Of this total, 792 tons were imported from France.

Recent Patents Relating to Rubber

THE UNITED STATES

GRANTED DECEMBER 7, 1920

- N**O. 1,361,065 Tire with cushioning disks inside. J. M. Johnson, Harrisburg, Pa.
 1,361,206 Flexible gas-tubing. C. E. Verhunce, assignor to R. Williamson & Co., both of Chicago, Ill.
 1,361,220 Elastic mesh-reducing garment. L. M. Bender, San Francisco, Calif.
 1,361,285 Tire valve-cap and pressure indicator. C. T. Nuss, Jamestown, N. D.
 1,361,296 Elastic band necktie retainer. L. F. Weir, Spokane, Wash.
 1,361,453 Vehicle back cushion with inflatable inside member. H. H. Frey, Chicago, Ill.; Hannah H. Frey, administratrix of H. H. Frey, deceased.
 1,361,721 Spring tire filler. W. Hamilton, St. John, New Brunswick, Canada.
 1,361,758 Hose coupling. A. E. Ewald, Oakfield, Wis.
 1,361,770 Shut-off for rubber tubing. E. O'Connor, New Haven, Conn.

GRANTED DECEMBER 14, 1920

- 1,361,907 Sole for shoes comprising rubber vulcanized to different degrees of hardness in respect to its tread and arch, the tread being flexible and the arch progressively stiffer rearwardly. A. T. Saunders, Chicopee, Mass., assignor to A. G. Spalding & Bros., Jersey City, N. J.
 1,361,926 Rubber shoe with inside pulling-on straps. C. T. and A. K. Thompson, Fitchburg, Mass.
 1,362,123 Resilient tire. C. G. Lundstrom, Ames, Ia.
 1,362,179 Trousers supporter. M. A. Piper, assignor to Free & Easy Belt Co., both of Marblehead, Mass.
 1,362,187 Pneumatic tire with separate inflatable cells. W. H. Richards, Knoxville, Tenn.
 1,362,291 Fountain pen. H. D. and P. X. Grossman, Chicago, Ill.
 1,362,340 Demountable rim for tires. W. J. P. Moore, New York City.
 1,362,430 Demountable rim for tires. C. H. McKendree, Lakeview, Ore.
 1,362,433 Split rim for tires. J. M. Meredith, Jr., Norfolk, Va.
 1,362,516 Inside tire protector. C. A. and G. E. Stuart, Oregon City, Ore.
 1,362,556 Hose supporter. E. Bettinger, Boonville, Ind.

GRANTED DECEMBER 21, 1920

- 1,362,682 Apparatus for eye treatment. F. E. Dayton, Chicago, Ill.
 1,362,731 Tire filler. F. A. Nagel, Cicero, Ill.
 1,362,751 Sanitary bed vessel with inflatable cushion. A. G. Snyder, Kansas City, Mo.
 1,362,766 Gas mask. J. M. McGargill, Imogene, Ia.
 1,362,774 Tire core filler. A. E. Brown, El Paso, Tex.
 1,362,804 Inflating coupling for tire valves. H. F. Kraft, Ridgewood, N. Y.
 1,362,894 Aerial toy parachute actuated by rubber band. T. F. Powell, Retail, Wash.
 1,362,908 Waterproof garment protector. J. M. Weisert, New York City.
 1,363,028 Suspenders. J. Weille, Paducah, Ky.
 1,363,086 Waterproof life-saving quilt with inflatable members. A. Chury, Harrisburg, Ill.
 1,363,182 Demountable rim for tires. C. Johnson, assignor to Johnson Rim & Parts Co., both of Buffalo, N. Y.

GRANTED DECEMBER 23, 1920

- 1,363,241 Garter. L. S. Florsheim, Chicago, Ill.
 1,363,277 Demountable rim for tires. J. C. Schleicher, Mount Vernon, N. Y.
 1,363,300 Pneumatic tire. O. S. Yohn, New York City.
 1,363,408 Bathing cap. C. K. Guinzburg, assignor to I. B. Kleinert Rubber Co., both of New York City.
 1,363,446 Golf ball practice device. E. J. Vogel, San Francisco, Calif. (See description elsewhere in this issue.)
 1,363,498 Segmental rim for tires. A. Davis, Nahant, and C. M. Clark, Boston—both in Mass.; said Davis assignor to said Clark.
 1,363,568 Shock-absorbing cushion heel. T. M. Conger, Elyria, O.
 1,363,604 Demountable rim for tires. L. H. Krickel, Monroe, La.
 1,363,727 Garment shield. V. Guinzburg, assignor to I. B. Kleinert Co., both of New York City.
 1,363,743 Cushion tire. L. J. Meredith, Rupert, Idaho.
 1,363,848 Automatic eraser. A. Ponce de Leon, Manila, P. I.
 1,363,920 Pneumatic injector for puncture closing compound. V. H. Roehrich, St. Paul, Minn.
 1,363,929 Amplifier for stethoscopes. O. Smiley and D. A. Anderson, Indianapolis, Ind.
 1,363,951 Spring and cushion tire. R. B. Boatwick, Duquesne, Pa.
 1,363,952 Demountable rim for tires. J. T. Cadenhead, Ensley, Ala.
 1,363,963 Hose coupling. H. J. Fitzpatrick, Athens, Ga.
 1,363,976 Armored pneumatic tire. S. B. Holmes, Seattle, Wash.
 1,364,023 Rubber heel. H. L. Beal, Brookline, Mass.

THE DOMINION OF CANADA

GRANTED DECEMBER 7, 1920

- 206,231 Surgical device with pneumatic cushion. A. H. Fleck, Oklahoma City, Okla., U. S. A.
 206,284 Hose coupling. W. B. Palmer, Montreal, Quebec.
 206,328 Pneumatic cushion. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, assignee of A. C. Biggers, Brooklyn, New York, U. S. A.
 206,385 Rubber heel. The Hill Rubber Heel Co., assignee of R. I. Hill—both of Elyria, Ohio, U. S. A.
 206,386 Inhaling apparatus. D. R. Cooper, Gore, assignor of C. W. Anderson and F. L. Howarth, both of Wellington—both in New Zealand.

GRANTED DECEMBER 14, 1920

- 206,415 Sanitary milk can cover. M. A. Blosser, Columbia, Ohio, U. S. A.
 206,486 Repair patch for rubber footwear. J. Robertson, Jr., Weehawken, New Jersey, U. S. A.

GRANTED DECEMBER 21, 1920

- 206,616 Inflatable double-ply bathing suit or life preserver. J. M. Combs, Akron, Ohio, U. S. A.
 206,657 Shoe sole. F. A. Nolan, St. Paul, Minn., U. S. A.
 206,659 Garter. C. W. Noyes, Newton, Mass., U. S. A., administrator of the estate of R. Gorton, deceased.

GRANTED DECEMBER 28, 1920

- 206,878 Rubber pad for horseshoes. B. P. Gray, Sutton Coldfield, Warwick, England.
 206,925 Elastic hose supporter. E. V. Norris, Buffalo, New York, U. S. A.
 207,050 Demountable rim for tires. J. G. Flood and J. A. Scott, assignee of a half-interest—both of Quebec City, Quebec.
 207,055 Tire liner. J. H. Grude, Los Angeles, Calif., U. S. A.

THE UNITED KINGDOM

PUBLISHED NOVEMBER 3, 1920

- 149,315 Fountain pen. J. Mallat, 53 boulevard de Strasbourg, Paris. (Not yet accepted.)
 149,321 Spring wheel with rubber disks. Société des Suspensions et Roues Flexibles le Telesco, Paris. (Not yet accepted.)
 149,377 Corrugated disks for steel wheels having tire rim welded or riveted on. Dunlop Rubber Co., 14 Regent street, London, and F. J. Keegan, Dunlop Rubber Co., Alma street, Coventry.
 149,418 Parachute. G. I. Taylor, 30 Clifton Hill, St. John's Wood, London.
 149,424 Disk wheel for tires. S. A. Horstmann and Horstmann Cars, Limited, James street West, Bath, Somerset.
 149,460 Directing-signs for aircraft. North British Rubber Co., Castle Mills, and H. Lord, 41 Bruntsfield Gardens—both in Edinburgh.
 149,517 Vehicle wheels with rubber tread blocks bearing on pneumatic cushion fitted between side disks. R. S. Wood, 62 Boston street, Manchester.
 149,542 Pneumatic tire with detachable tread. C. T. Drigenko, Alwin Hotel, Gloucester road, London.
 149,596 Bunion treating device, held in place by elastic bands. F. T. Tanner, 35 Tamworth road, Croydon, Surrey.
 149,598 Detachable perforated sheath or cover of rubber, etc., for feeding-bottle. I. A. McAuley, 7 Sanford road, Dublin, and J. J. Kelly, 28 Charleston avenue, Rathmines, County Dublin.
 149,599 Suction-cup rubber sole and heel. J. P. Crouch, La Quinta, Rosario de Santa Fe, Argentine.
 149,604 Device for securing rubber heel protectors. C. E. G. and A. V. Benbow, 44 Huron road, Balham, London.
 149,616 Pneumatic soles for boots, etc. G. E. C. Gerber, 36 rue des Chaussetiers, Clermont-Ferrand, Puy de Dome, France. (Not yet accepted.)

PUBLISHED NOVEMBER 10, 1920

- 149,853 Removable tread of rubber and canvas for wheel tires. P. P. White, 7 Featherstone Terrace, and A. Brooks, 30 May street—both of Wellington, New Zealand.
 149,895 Elastic, velvet-covered heel friction pads. W. J. Robinson, 118 Ardenlee avenue, and D. Kernehan, 103 Ravenhill road—both of Belfast.
 149,896 Pessary. A. H. Fleck, 213 Hudson street, Oklahoma, Okla., U. S. A.
 149,898 Dust cap for tire valves. A. Schrader's Son, Inc., 783 Atlantic avenue, Brooklyn, New York City; assignee of H. P. Kraft, 219 Godwin avenue, Ridgewood, New Jersey—both in U. S. A.
 150,013 Electric lamp device for use with captive balloon for marine distress signals. C. Sampson, Terrace House, Camberwell Green, London.
 150,030 Hosiery. C. O. Henson, 9 Jersey road, Wolverton, Buckinghamshire.

PUBLISHED NOVEMBER 17, 1920

- 150,058 Toy foot-ball player with kicking leg of rubber, etc., for table foot-ball. H. Roberts, 92 Norbury Crescent, Norbury, London.
 150,084 Cork-filled interliner for tires. W. Alderson, 24 Ward street, Kimberley, South Africa.
 150,142 Fastening waterproof wearing apparel. Anderson's Bristol Rubber Co., and W. H. Anderson, 9 High street, Bristol.
 150,202 Dust cap for tire valve. A. Schrader's Son, Inc., 6 Earl street, Westminster; C. T. Shaffer, San Francisco, Calif., U. S. A.
 150,219 Ladies' and children's rubber bloomers with ventilating portions at the side. K. Heitler, 605 West 141st street, New York City, U. S. A. (See Tire India Rubber World, November 1, 1920, page 110. United States Patent No. 1,353,750.)
 150,223 Tread bands of rubber and fabric for wheel tires. L. C. Cummings, 36 Druce street, Brookline, Mass., U. S. A.
 150,232 Respirator. C. Rosling and R. H. Davis, 187 Westminster Bridge road, London.
 150,255 Rubber or asbestos joint-making and stuffing-box packing. A. Bulbick, 76 The Crescent, Eastleigh, Hampshire.
 150,281 Garment supporter with elastic straps. H. S. Marks, 50 York street, Sydney, Australia. (Not yet accepted.)
 150,314 Hose union. Fiteflex Metal Hoses Corporation, Badger avenue, Newark, assignee of W. H. Fulton, Irvington—both in New Jersey, U. S. A. (Not yet accepted.)
 150,344 Bath seat with rubber-covered bar. G. H. Mullen, 115 Pinson Place, Queens Borough, New York, U. S. A. (Not yet accepted.)
 150,346 Pneumatic tire. Howe Rubber Corporation, Codwise avenue, assignee of J. Schmidt—both of New Brunswick, New Jersey, U. S. A. (Not yet accepted.)
 150,441 Tire-inflating valve. T. A. Low, Renfrew, Ontario, Canada.
 150,515 Garter. W. H. Stevens, 342 West 57th street, New York City, U. S. A.

Chemical Patents will be found on page 338. Machinery Patents on pages 341, 342.

PUBLISHED NOVEMBER 24, 1920

- 150,604 Detachable rubber heel. A. Rembado, 31 via XX Settembre, Genoa, Italy.
- 150,731 Rubber valve for water faucet. J. Maerchalck, 91 rue Lebroussart, Brussels. (Not yet accepted.)
- 150,795 Disk wheel for pneumatic tires. Riley, Limited, and H. Rush, City Works, Coventry.
- 150,838 Link-belt having alternate links of rubber, etc. O. L. Whittle, Victoria House, Wilderspool, Warrington.
- 150,847 Fountain pen. R. W. Jeffreys, 42 Herongate road, Wanstead, London.
- 150,890 Disk wheel for pneumatic tires. F. W. Brampton, of Steel Stampings, Limited, Cookley, near Kidderminster.
- 150,900 Parachute container. C. L. Basham, 8 Fairfield road, Kingston-on-Thames.
- 150,904 Fountain pen. I. S. Heilbrun, 59 Park Place, New York City, U. S. A.
- 150,946 Slitted rubber protectors for soles and heels. B. A. Thornhill, Single Tree, Newara Eliya, Ceylon.
- 150,948 Truss with porous rubber pad and elastic straps and belt. G. Skee, 48 Woodbine Terrace, Blyth, Northumberland.
- 150,986 Elastic webbing. Société Queron et Courbon, 55 boulevard Valbenoite, St. Etienne, Loire, France. (Not yet accepted.)
- 150,987 Elastic webbing. Société Queron et Courbon, 55 boulevard Valbenoite, St. Etienne, Loire, France. (Not yet accepted.)

PUBLISHED DECEMBER 1, 1920

- 151,071 Hydraulic packing. J. R. Cowell, Central House, Simmonds street, Johannesburg, South Africa.
- 151,090 Link-belt having links of metal embedded in rubber. I. H. Smith, 15 King street, Baker street, London; R. H. Brand, Cranborne Corner, Ascot; and T. G. Leith, Petmathen House, Oyne, Aberdeenshire.
- 151,130 Dynamometer with rubber cushion. K. Gaudie, 13 Winston avenue, Broomhill, Glasgow.
- 151,137 Dental vibratory appliance of rubber. C. W. de Rouet, 39 Panton street, Haymarket, London.
- 151,202 Rubber pad with spiked metal plate for attachment under sole of children's shoes by straps over toe and around heel, for use in propelling a scooter. G. F. Story, 120 Castelnau, Barnes, London.
- 151,284 Rubber sole for shoes with edge molded to simulate stitched welting. G. Lefevre (nee S. Garrouse), 5 boulevard Dubois, Dreux, France. (Not yet accepted.)

PUBLISHED DECEMBER 8, 1920

- 151,333 Double rubber sheet, particularly adapted for insoles, produced by compressing together a layer of spongy rubber and a layer of ordinary rubber, then vulcanizing. M. Kurosawa, 435 Ohaza Kasaigawa, Azuma-Machi, Minamikatsushika-Gun, Tokio.
- 151,417 Pneumatic tire with separate air-chambers, each fitted with a non-return valve. C. A. Crowther, 75 The Crescent, South Tottenham, London.
- 151,473 Band tire for perambulators, in which is arranged a retaining-wire with one or more ends passed through radial holes in the tire and rim. W. H. Dunkley, 75 Jamaica Row, Birmingham.
- 151,482 V-section driving belt for motor vehicles and cycles, dynamos, etc., of metal links connected by outer rows of leather or rubber pads and spaced by links of rawhide, ebonite, vulcanized fiber, etc. L. J. Essenhugh, 3 Woodbine Terrace, Grapenhall road, Warrington.
- 151,514 Tire with solid rubber tread fitted over an endless rubber band stretched across a channel rim and secured by rings and clamps. H. J. Murphy, 25 Quincy street, Somerville, Massachusetts, U. S. A.
- 151,529 Reinforced rubber tire. H. Pace, 21 Constantine road, Hampstead, London.
- 151,568 Elastic corset belt. J. Lindauer, 42 faubourg du Temple, Paris.
- 151,601 Spring wheel with continuous outer rigid ring and rubber cushions. G. H. Robinson, 14 East 28th street, New York City, U. S. A. (Not yet accepted.)
- 151,628 Tire composed of two or more rubber bands separated by a band of rubberized fabric in tension. A. van der Stichele, Patyntje, Porte de Courtrai, Ghent, Belgium. (Not yet accepted.)
- 151,629 Elastic garment-fastening. A. L. Vilander, 160 East 37th street, New York City, U. S. A. (Not yet accepted.)

GERMANY

PATENTS ISSUED, WITH DATES OF ISSUE

- 330,612 (December 30, 1919.) Method for repairing pneumatic tires. Ernest Latzel, Beuststrasse 7, Dresden.
- 330,761 (March 16, 1919.) Elastic tire. Alois Blaut, Bahnhofstrasse 11, Torgau.
- 331,221 (December 5, 1918.) Resilient tire. Julius Wüstenhöfer, Kronprinzenstrasse 56, Dortmund.
- 331,254 (June 6, 1919.) Atomizer. Johannes Goede, Vogelsang, Ostpreussen.

TRADE MARKS

THE UNITED STATES

SERIAL NUMBERS PUBLISHED DECEMBER 1, 1920*

- N^O. 134,621 NEURO-PATHO—rubber heels. F. W. Willis, Kansas City, Mo.
- 134,622 HI-STEPPER—rubber heels. F. W. Willis, Kansas City, Mo.
- 134,706 CATALPO—purified colloidal clay. W. Feldenheimer, London, Eng.

SERIAL NUMBERS PUBLISHED DECEMBER 1, 1920*

- 111,801 The words STAR FABRICORD—tire casings. The Star Rubber Co., Akron, O.
- 125,676 The letters O and C separated by the representation of a human eye—rubber horseshoe pads. Vought & Williams, New York City.

- 131,590 The words VULCANO GUMMI within representation of a rectangular stenciled border—vulcanizing strips of rubber and fabric for repairing inner tubes and other rubber articles. Patterson, Gottfried & Hunter, Inc., New York City.
- 132,189 The words MORE-GRIFF above a representation of a seal bearing clasped hands in center and around edge the words SELF-VULCANIZING PATCH—vulcanizing patches for tires and inner tubes. V. V. Moore, Cordele, Ga.
- 132,430 The word ARTCRAFT within outline representation of an artist's palette—fountain pens. Edison-Cromer Pen Co., Birmingham, Ala.
- 133,125 The words NY-CL—hot- and cold-water bags and bags for ice packs. R. J. Bowell, Elyria, O.
- 134,125 Representation of a roll of belting bearing round label having thereon a representation of two elks with interlocked antlers and the words IMPERIAL BELTING COMPANY, INNERLOCKED PRODUCTS—belting, hose and packing of rubber, balata, fabric, etc., and combinations of these materials. Imperial Belting Co., Chicago, Ill.
- 134,775 Representation of a grotesque figure of a tooth having bodily members and a face, and bearing aloft a dumb-bell accompanied by the words TOOTH-EXERCISE GUM and TRADE MARK—chewing gum. D. M. Dickinson, Jr., Detroit, Mich.
- 136,090 Representation of two bears standing on hind feet and embracing opposite sides of an inflated inner tube enclosing the words BEAR HUG—tube patches. Para Products Co., Dallas, Tex.
- 136,129 The words AMERICAN BEAUTY—elastic webbing. The Russell Manufacturing Co., Middletown, Conn.
- 136,130 The word MONARCH above representation of a lion's head—elastic webbing. The Russell Manufacturing Co., Middletown, Conn.
- 136,131 The word LIBERTY above representation of the Statue of Liberty—elastic webbing. The Russell Manufacturing Co., Middletown, Conn.
- 136,132 The word KANGAROO above representation of a kangaroo—elastic webbing. The Russell Manufacturing Co., Middletown, Conn.
- 136,133 The word SANSEER—elastic webbing. The Russell Manufacturing Co., Middletown, Conn.
- 136,135 Conventionalized representation of two ribbon scrolls bearing words BLUE RIBBON—elastic webbing. The Russell Manufacturing Co., Middletown, Conn.
- 136,871 The initials C. C. C.—tires, tubes, inner liners, and blow-out patches. C. C. C. Fire Hose Co., Canton, Mass.
- 137,002 The words SERV-US—fruit jar rings. Serv-US Grocery Products Corporation, New York City.
- 137,365 The word PLEASANT—chewing gum. D. M. Dickinson, Jr., Detroit, Mich.
- 138,546 The figures 1885 and the words ELECTRICAL WIRES & CABLES against a dark octagonal background—electrical wires and cables. Chicago Insulated Wire & Manufacturing Co., Sycamore, Ill.

SERIAL NUMBERS PUBLISHED DECEMBER 15, 1920*

- 120,937 The word Fox repeated above the words Red and Gray respectively on each side of the representation of a fox jumping through an inner tube—tires and inner tubes. Southeastern Rubber Works, Macon, Ga.
- 127,868 Representation of the sun and earth, the sun bearing the word RAY and reflecting it on the earth; the earth encircled by an interliner bearing the words PUNCTURE PROOF INTERLINERS; the whole above the words FOR PNEUMATIC TIRE CASINGS PROTECT THE MOTORING WORLD—pneumatic tires and interliners. Ray Tire & Rubber Co., Chicago, Ill.
- 129,007 Representation of a coat of arms comprising the word THE above a crown between two lions rampant holding a ball bearing the letter E and standing on a scroll bearing the word EXCELSIOR, all above the word SHOE—shoes and boots of leather, rubber, fabric, and combinations of these. The Excelsior Shoe Co., Portsmouth, O.
- 133,274 The word MALCO within a diamond outline—windshield cleaners of the squeegee type. The B. I. Malouf Co., Salt Lake City, Utah.
- 135,122 The word SLIPKNOT formed of representation of cord—fabric and cord tire casings. Automobile Owners Tire Corporation, Sioux City, Ia.
- 137,596 The word GLOBETT—vulcanized rubber and fabric belts. United & Globe Rubber Co., Trenton, N. J.

SERIAL NUMBERS PUBLISHED DECEMBER 21, 1920*

- 125,461 The word JAX—rubber heels. Holtite Manufacturing Co., Baltimore, Md.
- 128,921 The word AVIATOR having the letters arranged in a circle with a dash at the bottom between the A and R—golf balls. The Fair, Chicago, Ill.
- 132,236 Representation of a dust cap for tire valves, having the word JIFFY superimposed thereon—dust caps for tire valves. P. A. Erbes, San Francisco, Calif.
- 134,924 The word PACEMAKER—rubber heels and lifts. Tee Pee Rubber Co., New York City.
- 136,939 The word MAGNUM—tire repair outfits. The Dunlop Rubber Co., Limited, London, England.
- 137,117 The word EXCO—inner tires for relining pneumatic tire casings. O. W. Eno Rubber Co., Los Angeles, Calif. (See THE INDIA RUBBER WORLD, October 1, 1920, page 36.)
- 137,653 The word STEADFAST—tire casings and tubes. The Achilles Rubber & Tire Co., Inc., Binghamton, N. Y.
- 137,707 The word SEMINOLE underlined by an arrow pointing to the left and preceded by a representation of an Indian's head framed by a tire—tire tubings and casings. The National Sales Co., Chicago, Ill.
- 138,124 The words HEAVY TOURIST—pneumatic tires and tubes. The Goodyear Tire & Rubber Co., Akron, O.

SERIAL NUMBERS PUBLISHED DECEMBER 1, 1920*

- 124,312 Representation of a dress shield bearing the words NASHCO and WORLD'S BEST and having in center representation of a winged

*Notice of opposition must be filed within thirty days of the date of this publication.

†Add to serial numbers published in our issue of January 1, 1921.

- shield picturing a seal on a rock with a lighthouse in the background and on each wing of the shield the words WATERPROOF and WASHABLE, respectively—dress shields. S. K. Naschek, New York City.
- 131,654 Representation of a rectangular label bearing a parrot in a ring against a vertically striped background and the words POLLY BRAND SPEAKS FOR ITSELF—garters and hose supporters. The Russell Manufacturing Co., Middletown, Conn.
- 131,661 Representation of a kangaroo beneath the word KANGAROO—garters, hose supporters and suspenders. The Russell Manufacturing Co., Middletown, Conn.
- 137,754 Representation of the checkerboard surface of a package bearing the words ADAMS KISS-ME—chewing gum. American Chic Co., New York City.

TWO KINDS OF TRADE MARKS NOW BEING REGISTERED

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registrable under the latter act, trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation. The following list includes those of interest to the rubber trade published since the establishment of this procedure:

GRANTED SEPTEMBER 21, 1920

Under Act of February 20, 1905

- 134,877 A inside ace of spades—hard rubber pipe-bits, cigarette holders, etc. American Hard Rubber Co., Hempstead and New York, N. Y.
- 134,928 WEDGE—erasers. Joseph Dixon Crucible Co., Jersey City, N. J.
- 134,929 ECLIPSE—erasers. Joseph Dixon Crucible Co., Jersey City, N. J.
- 134,942 VIOLET—elastic webs. Faire Bros. & Co., Limited, Leicester, Eng.
- 134,954 GOLIATH—rubber belting, hose and packing. The General Rubber Goods Co., Cleveland, O.
- 135,006 ALLROAD—tires and tubes. McClaren Rubber Co., Charlotte, N. C.
- 135,037 HUMIDITY—tobacco pouches. Fearson Products Corporation, New York City.
- 135,042 COUNCIL OAK—tires and tubes. R. B. Piper, Sioux City, Ia.
- 135,168 COW HIDE, etc.—tires and tubes. C. O. Williams, Wichita, Kans.

Under Act of March 19, 1920, Sec. 1 (b)

- 135,180 The word KANTKINK with the top and bottom legs of the first and last K extended to form horizontal lines above and below the word—belting, hose, packing, and tires. The Goodyear Tire & Rubber Co., Akron, O.

GRANTED SEPTEMBER 28, 1920

Under Act of February 20, 1905

- 135,270 HEATHER—rubber heels. The Lorain Rubber Heel Co., Lorain, O.
- 135,280 PENTO FOUNTAIN PEN, etc.—fountain pens. W. J. May & Co., Limited, East Twickenham, Eng.
- 135,326 SIR, etc.—rubber dolls and rattles. S. I. Rothschild, New York City.
- 135,352 PARAMOUNT, etc.—garters, suspenders, etc. U. S. Garter & Suspender Co., Chicago, Ill.

Under Act of March 19, 1920, Sec. 1 (b)

- 135,368 GOLD MEDAL—footwear of rubber and other materials. Dorothy Dodd Shoe Co., Boston, Mass.
- 135,370 ALL-WEATHER—tires and treads. The Goodyear Tire & Rubber Co., Akron, O.

GRANTED OCTOBER 12, 1920

Under Act of February 20, 1905

- 135,378 An eagle, etc.—elastic cords, braids and tapes. W. J. Adams & Co., Limited, Manchester, England.
- 135,386 TROJAN—rubber sheeting and blankets. Archer Rubber Co., Milford, Mass.
- 135,387 ROYAL ARCHER—rubber sheeting and blankets. Archer Rubber Co., Milford, Mass.
- 135,402 LISLE LASTIC, etc.—elastic braids. The Braided Fabric Co., Providence, R. I.
- 135,412 BELTEN, etc.—dressing for rubber and other kinds of belts, etc. Chicago Belting Co., Chicago, Ill.
- 135,512 HORSE SHOE RE-CORD TUBE—inner tubes. Racine Auto Tire Co., Racine, Wis.
- 135,541 E. Z.—garters. The Thos. P. Taylor Co., Bridgeport, Conn.

RENEWED

- 18,185 A duck and the word BRAND—leather and canvas clothing. Dunlop, Lawton & Hall, Chicago, Ill., assignor to United States Rubber Co. Registered July 15, 1890.
- 18,402 CLIMAX RUBBER TAPE—coverings for electric and telephone wires. Boston Rubber Shoe Co., Boston and Malden, Mass. Registered September 2, 1890.

GRANTED OCTOBER 19, 1920

Under Act of February 20, 1905

- 135,613 WORTH RUBBER COMPANY around triangle—rubber boots and shoes. Bourn Rubber Co., Providence, R. I.
- 135,660 ELASTICAPS—electric splice insulators. The Elastipac Co., Hoboken, N. J.
- 135,673 NATTY PAD—garters. George Frost Co., Boston, Mass.
- 135,690 MAN-HEIL—inhalers. Frederick Heilman Co., Johnstown, Pa.
- 135,792 ADMIRAL—suspenders. The Russell Manufacturing Co., Middletown, Conn.
- 135,837 MOTOMAT—rubber mats. United States Rubber Co., New Brunswick, N. J., and New York City.

- 135,838 FELTEX—felt composition insoles. United States Rubber Co., New Brunswick, N. J., and New York City.
- 135,839 Representation of a tire with white stripes on side walls—tires. United States Tire Co., New York City.
- 135,840 DIXIE CLAY—clay as filler in manufacture of rubber products, etc. R. T. Vanderbilt Co., Inc., New York City.

Under Act of March 19, 1920, Section 1 (b)

- 135,867 LEE—belting, hose, patches, tubing, inner tubes, and tires. Lee Tire & Rubber Co., New York City.
- 135,871 MILLER—tires, etc. The Miller Rubber Co., Akron, O.
- 135,877 COMPRESSION—inner tubes. U. S. Compression Inner Tube Co., Tulsa, Okla.
- 135,879 Figure of little girl wearing garters, reflected back view in mirror—children's garters. A. M. Wilson Co., Cherokee, Ia.

RENEWED

- 18,567 FOOTHOLDS—rubber shoes. Boston Rubber Shoe Co., Boston and Malden, Mass. Registered October 28, 1890.
- 18,568 NORTHWEST—rubber shoes. Boston Rubber Shoe Co., Boston and Malden, Mass. Registered October 28, 1890.
- 18,569 TROJAN—rubber shoes. Boston Rubber Shoe Co., Boston and Malden, Mass. Registered October 28, 1890.
- 18,599 LACEIT—rubber shoes. Boston Rubber Shoe Co., Boston and Malden, Mass. Registered November 4, 1890.
- 18,671 STORM—rubber shoes. Boston Rubber Shoe Co., Boston and Malden, Mass. Registered December 2, 1890.
- 18,769 VERNON—rubber shoes. Boston Rubber Shoe Co., Boston and Malden, Mass. Registered December 30, 1890.

GRANTED OCTOBER 26, 1920

Under Act of February 20, 1905

- 135,881 REINDEER—tire tubes and casings. Achilles Rubber & Tire Co., Binghamton, N. Y.
- 135,947 TEA BERRY—chewing gum. The D. L. Clark Co., Pittsburgh, Pa.
- 135,996 TREADO—composition for repairing rubber goods. J. T. Flaherty, Springfield, Mass.
- 136,086 CAMCO—canvas and rubber shoes, rubber soles and heels, etc. Warren MacPherson, Cambridge, Mass.
- 136,098 DUTIFLEX—metal-lined, fabric-covered rubber hose. Metal Hose & Tubing Co., Inc., Brooklyn, N. Y.
- 136,177 SAMPSON STOPPERS—rubber expandable stoppers. The Sampson Appliance Corporation, New York City.

GRANTED NOVEMBER 2, 1920

Under Act of February 20, 1905

- 136,302 ARROW—garters and supporters. American Textile Products Co., Rochester, N. Y.
- 136,360 CARMOJON—tires and tubes. Carlisle Tire & Rubber Co., Dover, Del., and Carlisle, Pa.
- 136,405 DUR-A-BUL—blow-out patches. C. L. Durham, Salina, Kans.
- 136,437 BEAR HUG—puncture-curing patches. W. F. Goddard, Moberly, Mo.
- 136,441 FRESHET—hose. The B. F. Goodrich Co., New York City.
- 136,442 TEXTSTAR—machinery packing. The B. F. Goodrich Co., New York City.
- 136,518 LONDON—leather, fabric, and rubber shoes. London Shoe Co., New York City.
- 136,560 ACORN—repair and retread vulcanizers. A. E. Nolan, Portland, Ore.
- 136,594 COUNTRY ROAD—tires and tubes. Racine Rubber Co., Racine, Wis.
- 136,640 S—rubber heels. The Squegee Heel Co., Cleveland, O.
- 136,641 SQUEEGEE—rubber heels. The Squegee Heel Co., Cleveland, O.
- 136,673 TINY TOT—infants' rubber goods and sundries. United Drug Co., Boston, Mass.

GRANTED NOVEMBER 9, 1920

Under Act of February 20, 1905

- 136,733 ACORN—tires and tubes. Acorn Tire & Rubber Co., Chicago, Ill.
- 136,738 A inside ace of spades—hard rubber goods. American Hard Rubber Co., New York City.
- 136,740 EVER-READY—rubber-set shaving brushes. American Safety Razor Corporation, Brooklyn, N. Y.
- 136,799 JIFFY LOCK—waterproof bathing-suit bags. J. D. Farkas, New York City.
- 136,821 GP inside diamond—hose and packing. The Gutta Percha & Rubber Manufacturing Co., New York City.
- 136,843 KLEINERT's—sanitary rubber sheets, etc. I. B. Kleinert Rubber Co., New York City.
- 136,844 KLEINERT inside Maltese cross beneath The Best—sanitary rubber sheets, etc. I. B. Kleinert Rubber Co., New York City.
- 136,889 PARCO—tires. The Pan-American Rubber Co., Milwaukee, Wis.
- 136,908 MILESTONES—tires and casings. A. Reinsberg, Salt Lake City, Utah.
- 136,921 SKIDDESE—anti-skidding tires. P. Sangoff, Worcester, Mass.
- 136,955 SURETY—inner tubes. Surety Tire & Rubber Co., St. Louis, Mo.
- 136,970 GLOBESTOP—brake linings. United & Globe Rubber Co., Trenton, N. J.

Under Act of March 19, 1920, Sec. 1 (b)

- 137,007 MCCREARY TIRES behind rectangle bearing words BUILT FOR LONGER SERVICE—tires. H. McCreary, Indiana, Pa.
- 137,010 O'BANNON MOLESKIN with L and K of last word joined and bearing the word QUALITY—waterproofed upholstery fabrics.

GRANTED NOVEMBER 16, 1920

Under Act of February 20, 1905

- 137,022 HEL FI—fibrous rubber packing. The Continental Supply Co., St. Louis, Mo.
- 137,023 MAGNUM—tires. The Dunlop Rubber Company, Limited, London, Eng.
- 137,037 GABLE—tires. E. B. Killen, London, Eng.
- 137,048 RAMBLER—The Ohio Rubber Co., Cincinnati, O.
- 137,074 WALKER'S GOLDEN WALKERITE—fibrous rubber packing. James Walker & Co., Limited, London, Eng.
- 137,075 LIPACKITE—fibrous rubber packing. James Walker & Co., Limited, London, Eng.

Under Act of March 19, 1920, Section 1 (b)

- 137,081 CEIBASILE—filling for life-saving garments, etc. Kapo Manufacturing Co., assignor to American Life Saving Garment Co., both of Boston, Mass.

GRANTED NOVEMBER 23, 1920

Under Act of February 20, 1905

- 137,091 A inside ace of spades—hard rubber rods, sheets and tubes. American Hard Rubber Co., Hempstead and New York City, N. Y.
- 137,197 DIT—rubber boots. George F. Dittmann Boot & Shoe Co., St. Louis, Mo.
- 137,202 VAC—golf balls. The Dunlop Rubber Company, Limited, Regents Park, London, Eng.
- 137,206 FICHER—storage batteries and parts. The Eagle-Picher Lead Co., Cincinnati, O.
- 137,207 PICHER—pig lead, spelter, sheet and slab zinc. The Eagle-Picher Lead Co., Cincinnati, O.
- 137,209 PICHER—paints, pigments, etc. The Eagle-Picher Lead Co., Cincinnati, O.
- 137,217 1089—rubber and rubber composition erasers. Eberhard Faber, Brooklyn, N. Y.
- 137,218 UNKEDA—rubber heels and footwear. T. A. Farrell, Boston, Mass.
- 137,230 ROLLICKERS—shoes of leather, canvas and rubber. S. Freiburger & Bro. Co., Inc., Fort Wayne, Ind.
- 137,244 PONY BLIMP—motor-driven balloons. The Goodyear Tire & Rubber Co., Akron, O.
- 137,245 PONY BLIMP—motor-driven balloons. The Goodyear Tire & Rubber Co., Akron, O.
- 137,287 NU-WAY—dust-caps for pneumatic-tire valves. A. L. Just, Syracuse, N. Y.
- 137,293 LEATHEREIGN—raincoats, etc. C. Kenyon Co., Brooklyn, N. Y.
- 137,294 LEATHEREIGN—waterproof fabrics in the piece. C. Kenyon Co., Brooklyn, N. Y.
- 137,311 HONEST ABE—tires, casings and tubes. Lincoln Tire & Rubber Co., Cleveland, Cincinnati, Dayton, Fiqua, Toledo, Troy, and Youngstown, O., and Miami, Fla.
- 137,369 AIR PEDS—rubber or fiber soles and heels. Pioneer Products, Inc., New York City.
- 137,429 WORLD—tires. World Tire Corporation, Chicago, Ill.
- 137,483 DICKSON'S VICTORY—fibrous steam packing. Stewart Dickson & Co., Inc., Boston, Mass.

GRANTED NOVEMBER 30, 1920

Under Act of February 20, 1905

- 137,531 A inside ace of spades—hard rubber knife handles, etc. American Hard Rubber Co., Hempstead and New York, N. Y.
- 137,539 ARMORCORD—inner tubes. Armorcord Rubber Co., Morgantown, W. Va.
- 137,587 RED RAVEN RUBBER CO.—tires and tubes. J. H. Dwork, Newark, N. J.
- 137,633 GASMASK—rubber sheeting in piece or roll. H. L. Kaufmann, Louisville, Ky.
- 137,648 McRAE'S MADE RIGHT—inner tubes. McRae Wholesale Hardware Co., Helena, Ark.
- 137,660 TEDDY FANTS—rubber baby pants, etc. The Miller Rubber Co., Akron, O.
- 137,662 SNAP LOX—dust caps for pneumatic-tire valves. Newsom Valve Co., St. Louis, Mo.
- 137,667 MAP OF OHIO—tires and inner tubes. The Ohio State Rubber Tire Co., Port Clinton, O.
- 137,682 PRUDENTIAL—tires and inner tubes. The Prudential Rubber Co., Akron, Ohio.
- 137,709 KANTUMOFF—rubber patches. Stearns Rubber Products Co., Chicago, Ill.
- 137,731 NAUGHTON—carriage cloth of fabric and rubber. United States Rubber Co., New Brunswick, N. J., and New York City.
- 137,732 RAYNEAR—carriage cloth of fabric and rubber. United States Rubber Co., New Brunswick, N. J., and New York City.
- 137,733 SUPRETEX—carriage cloth of fabric and rubber. United States Rubber Co., New Brunswick, N. J., and New York City.
- 137,734 II inside tire—tire casings and tubes. The United Rubber Co., Akron, O.

GRANTED DECEMBER 7, 1920

Under Act of February 20, 1905

- 137,778 DOROTHY DODD—boots, shoes and slippers of rubber and other materials. Dorothy Dodd Shoe Co., Boston, Mass.
- 137,889 RUBTEX—rubberized cloth and blankets. United States Rubber Co., New Brunswick, N. J., and New York City.

Under Act of March 19, 1920, Section 1 (b)

- 137,918 O'BANNON COATED FABRICS—waterproof fabrics. O'Bannon Corporation, New York City.

GRANTED DECEMBER 14, 1920

Under Act of February 20, 1905

- 137,929 AMELECTRIC—insulated wire. American Electrical Works, Philadelphia, R. I.
- 137,939 AERO-FOUNT—fountain pens. Edward O. Baker, Shanghai, China.
- 137,977 MACGREGOR—golf balls, etc. The Crawford, McGregor & Canby Co., Dayton, O.
- 137,993 EDISON—fountain pens. Edison Pen Co., Inc., Petersburg, Va.
- 138,001 WHITE TOP—fountain pens. The Evans Dollar Pen Co., Waterloo, Ia.
- 138,014 WELDO—patches for repairing rubber goods. H. Greenberg, New York City.
- 138,029 KARTITE—belting, hose and packing. Imperial Belting Co., Chicago, Ill.
- 138,030 ANTISULPHO—belting, hose and packing. Imperial Belting Co., Chicago, Ill.
- 138,031 SAHARA—belting, hose and packing. Imperial Belting Co., Chicago, Ill.
- 138,050 GREEN CROSS RELINTE—tire liners. C. M. Lash, Columbus, O.
- 138,065 BENFLEX—metal-lined, fabric-covered rubber hose. Metal Hose & Tubing Co., Inc., Brooklyn, N. Y.
- 138,067 DIAP-A-WASH—combined wringer and washboard. The Tierson Co., Rockford, Ill.

- 138,112 TRUFLITE—hand and tennis balls. The Seamless Rubber Co., Inc., New Haven, Conn.
- 138,161 ATLANTIC—tires. The Charles Williams Stores, Inc., Brooklyn, N. Y.

Under Act of March 19, 1920, Section 1 (b)

- 138,196 Representation of a square plinth in oblique perspective, bearing the words SHERARDIZING ZINC-ALLOYED METALS—zinc alloys. The New Haven Sherardizing Co., Hartford and New Haven, Conn.

RENEWED

- 17,910 YUCCA—chewing gum. Yucca Manufacturing Co., Cleveland, O.; Wm. Wrigley, Jr., Co., assignee. Registered May 13, 1890.
- 18,673 DIAMOND—belting, hose, packing, and mechanical rubber goods. New York Belting & Packing Co., New York City. Registered December 2, 1890.

GRANTED DECEMBER 21, 1920

Under Act of February 20, 1905

- 138,220 EXCLSION—belting, hose and machinery packing. Boston Belting Corporation, Boston, Mass.
- 138,249 VOLUNTEER—rubber sheet packing. The B. F. Goodrich Co., New York City.
- 138,250 ELBON—hose and packing. The B. F. Goodrich Co., New York City.
- 138,251 ELEVA—elevator belts of fabric and rubber. The B. F. Goodrich Co., New York City.
- 138,236 SPRIFOOT—rubber soles and heels. Kleistone Rubber Co., Boston, Mass.
- 138,277 KLEISTONE—rubber soles and heels. Kleistone Rubber Co., Boston, Mass.
- 138,378 ZONTA—fabric and cord tire casings and inner tubes. Zonta Tire & Rubber Co., Sioux City, Ia.

Under Act of March 19, 1920, Section 1 (b)

- 138,382 CONKLIN—fountain pens. The Conklin Pen Manufacturing Co., Toledo, O.
- 138,400 TYREGARD—inner liners. The National Sales Co., Memphis, Tenn.
- 138,401 FORMOST—tires, casings and tubes. United Motors Service, Inc., Detroit, Mich.

GRANTED DECEMBER 28, 1920

Under Act of February 20, 1905

- 138,426 Seal of company—belting, hose and packing. Boston Belting Company, Boston, Mass.
- 138,447 FABRECA—belting. Fabreca Belting Company, Boston, Mass.
- 138,507 TRI-MATIC—tires. Tri-Matic Tire & Tube Co., Wilmington, Del., and Wellington, O.
- 138,517 STACO—boots and shoes of rubber and other materials. Stone-Tarlow Co., Inc., Brockton, Mass.
- 138,523 S. S. WHITE—dental rubber goods, vulcanizers, etc. The S. S. White Dental Manufacturing Co., Philadelphia, Pa.

Under Act of March 19, 1920, Section 1 (b)

- 138,542 FRANKLIN—tire casings and tubes. The Franklin Tire & Rubber Co., Kent, O.

THE DOMINION OF CANADA

REGISTERED

- 27,621 The word BEAVER—balata belting. The Beldam Packing & Rubber Co., 29 Gracechurch street, London, E. C. 3.
- 27,622 The word PANTHER—leather belting. The Beldam Packing & Rubber Co., 29 Gracechurch street, London, E. C. 3.
- 27,673 Oval containing the words DU PONT and FABRIKOID fancifully printed—artificial or imitation leather. Du Pont Fabrikoid Co., Wilmington, Del., U. S. A.
- 27,760 The word WILLARD—storage batteries. Willard Storage Battery Co., Cleveland, O.
- 27,784 The word TAG—dental, medical and surgical appliances, thermometers, sphygmomanometers, etc. Charles J. Tagliabue Manufacturing Co., Brooklyn, N. Y.
- 27,785 The word TAG—measuring, indicating, and registering appliances and thermometers for household and industrial use. Charles J. Tagliabue Manufacturing Co., Brooklyn, N. Y.

THE UNITED KINGDOM

PUBLISHED OCTOBER 20, 1920

- 405,015 The word RUBBADUBDUB—inflatable rubber toys. J. G. Franklin & Sons, Limited, 17 Colvestone Crescent, Dalston, London, E. 8.
- 405,237 Representation of a globe bearing the initials A. O. C., dividing the words GLOBE BRAND—rubber tobacco pouches. A. Oppenheimer & Co., 38 Finsbury Square, London, E. C. 3.
- 405,455 The word LATITE—balata machine belting. W. T. Lambourne trading as The W. T. Lambourne Co., 5 Henrietta street, Covent Garden, London, W. C. 2.
- 406,356 The word VANGUARD—waterproof and rainproof coats. New British Rubber Co., Limited, 399 Lord street, Southport.
- B406,502 The word MARCO—rubber tires, casings, inner tubes and patches. Brown Brothers, Limited, 20 to 34 Great Eastern street, London, E. C. 2.
- B406,856 The words ENCO-FLATOR—tire inflating pumps. Fluid Pressure Pumps, Limited, Clifton Street Works, Clifton street, Notting Hill, London, W. 11.

PUBLISHED OCTOBER 27, 1920

- 403,405 The word DURCLASTIC—suspenders, garters, braces and belts. H. Seal, 3 Redcross street, Leicester.
- 403,877 Representation of a label bearing picture of a frog sitting on a pond-lily pad among rushes, reaching up one forefoot to a spider suspended from a web above—rubber-soled shoes and galoshes. Kay Brothers, 1 Brazil street, Manchester.
- 404,369 Representation of a tire bearing the words PRESERVES LEATHER AND RUBBER and enclosing an oval object bearing the word PLIO, all above the words TRADE MARK—all preserving, waterproofing, blacking, staining, polishing, cleansing and reno-

- vating compounds and preparations included in Class No. 50 for use on leather or rubber goods. The Viva Co., 112 Moss Lane East, Manchester.
- 466,489 Representation of a seal bearing the words BALCO—MADE IN ENGLAND—English-make machine belting and straps included in Class No. 40. The Manchester Balata Belting Co., Limited, 292A, Vauxhall Road, Liverpool.

PUBLISHED NOVEMBER 3, 1920

- 393,249 The word CHICLE between the letter A upright above and inverted below—chewing gum, etc. Adams & Beemans, Limited, 89 Great Eastern street, London, E. C. 2.
- 402,533 The word SUPERA—goods manufactured from rubber and gutta percha, not included in classes other than No. 40. Levetus & Co., 194 Bishopsgate, London, E. C. 2.
- 403,294 The word TETRALIN—solvent for rubber, etc., and all goods included in Class No. 1, excepting enamels. Tetralin Gesellschaft mit Beschränkter Haftung, 5 Behrenstrasse, Berlin W. 8, Germany; address for service in the United Kingdom, care of Dicker & Pollak, 20-23 Holborn, London, E. C. 1.
- 403,298 The word TETRALIN—all goods included in Class No. 47 except grease-extracting compounds. Tetralin Gesellschaft mit Beschränkter Haftung, 5 Behrenstrasse, Berlin, W. 8, Germany; address for service in the United Kingdom, care of Dicker & Pollak, 20-23 Holborn, London, E. C. 1.
- 404,207 Representation of a label bearing the figures of a woman and a man in Eastern costume above the word MAMARAJAH—India rubber goods included in Class No. 11. Radium-Gummiwerke Gesellschaft mit Beschränkter Haftung, Gummi-Waren Fabrik, Graven Muhlenweg, Cologne-Dellbrück, Germany; address for service in the United Kingdom, care of Sefton-Jones, O'Dell & Stephens, 285 High Holborn, London, W. C. 1.

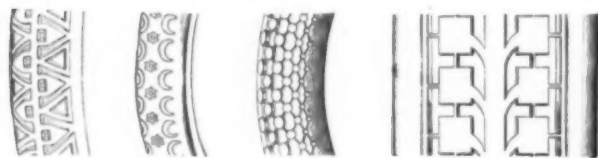
PUBLISHED NOVEMBER 10, 1920

- 406,014 Representation of a seal bearing a monogram—all goods included in Class No. 40. The Standard Tire & Rubber Manufacturers, Limited, Alpertown Rubber Works, Ealing Road, Wembley, Middlesex.
- B407,323 The word ANCHOR—litharge, sulphur, zinc oxide and golden antimony sulphide, all being chemicals used in rubber compounding. The Anchor Chemical Co., Limited, Clayton Lane, Clayton, Manchester.

DESIGNS

THE UNITED STATES

- NO. 56,723 Tire tread. Patented December 7, 1920. Term 7 years. A. Heskett, Oakland, Calif.
- 56,726 Rubber heel. Patented December 7, 1920. Term 7 years. E. L. McKimm, Kansas City, Mo.
- 56,734 Tire tread. Patented December 14, 1920. Term 14 years. E. O. Blekre, Sioux City, Ia.



- 56,750 Automobile tire. Patented December 14, 1920. Term 14 years. C. W. McCone, assignor to The Gordon Tire & Rubber Co.—both of Canton, O.
- 56,766 Tire. Patented December 14, 1920. Term 7 years. H. S. Rector, Chicago, Ill.
- 56,826 Rubber heel. Patented December 28, 1920. Term 7 years. E. L. McKimm, Kansas City, Mo.

GERMANY

DESIGN PATENTS ISSUED, WITH DATES OF ISSUE

- 755,749 (September 6, 1920.) Resilient tire. Charles C. Powers, Williams, Ark., U. S. A., assignee of Casimir von Ossowski, Berlin, W. 9.
- 756,152 (August 12, 1920.) Pneumatic bicycle tire. Richard Hofmann, Neuseifersdorf near Rosswein i. S.
- 756,264 (October 4, 1920.) Rubber heel. Hermann Oergel, Ruhbergstrasse 4, Hanover.
- 756,374 (September 6, 1920.) Extensible rubber heel pad for footwear. Metropol-Gummi G. m. b. H., Dortmund.
- 756,646 (August 16, 1920.) Non-skid tread. Paul Naurmann, Pappendorf near Hainichen.
- 756,800 (October 2, 1920.) Machine belt. Georg Diesener, Schlesischestrasse 18, Berlin.
- 757,210 (September 21, 1920.) Attaching rubber heels or soles through elasticity. Oswald Grote and Virgil Höniger, Heinestrasse 32, Düsseldorf.
- 757,265 (February 7, 1920.) Compressible pneumatic tire with air chambers, particularly for motor vehicles. Gustav Mueller, Berkenwerder.
- 757,292 (September 27, 1920.) Bossed tire tread. The Standard Tyre & Rubber Manufacturers, Limited, London; representative, assignee H. Neubart, Berlin, S. W. 61.
- 757,923 (October 27, 1920.) Rubber glove. Otto Dillner, Torgauerstrasse 30, Leipzig-Neussellerhausen.
- 758,509 (November 3, 1920.) Leg prosthesis with rubber foot. Gesellschaft der echten Marks-Prothesen A. A. Marks m.b.H., Frankfurt-on-the-Main.
- 758,510 (November 3, 1920.) Rubber foot with insertions of webbing. Gesellschaft der echten Marks-Prothesen A. A. Marks m.b.H., Frankfurt-on-the-Main.
- 758,330 (September 27, 1920.) Injection syringe. Carl Jacob Stephan, Eimsbüttel-Chaussee 2, Hamburg.

- 757,449 (October 22, 1920.) Protective rubber cover for telescope lenses. Emil Busch Akt. Ges., Optische Industrie, Rathenow.
- 757,550 (February 9, 1920.) Tire patch. H. Bürklin, Emmendingen.
- 757,586 (October 9, 1920.) Detachable solid tire. Rudolf Poschenrider, Neustadt a. D.
- 757,919 (October 25, 1920.) Shoe sole with rubber tread surface. Gustav Albrecht Strunk, Hoeningergeweg 288, Köln-Zollstock.
- 758,046 (September 13, 1920.) Footwear with natural rubber soles attached by means of square wooden pegs. Georg Hommel, Niedersteim near Pulanitz, i. S.
- 759,331 (October 25, 1920.) Cudgel consisting of steel rods enclosed in a rubber tube and covered with leather. Vereinigte Feitschenfabriken G. m. b. H., Isny.
- 759,606 (October 25, 1920.) Clinchers for holding together torn rubber tires. Heinrich Kurzrock, Dippach near Berka, Wehra.
- 759,723 (July 1, 1919.) Resilient tire for automobiles, etc. Josef Jerzykowski, Celtisstrasse 10, Nuernberg.

TRADE MARK PIRACY

No rubber manufacturer need be reminded of the protective and advertising value of the trade mark. It is the lever by which he controls the prestige and good-will that has cost him money and effort to acquire. In certain countries a trade mark becomes the property of the first applicant for its registration, regardless of who makes the article. The only way an American manufacturer can protect himself against trade mark piracy is to register his trade mark in every foreign country in which he is now doing business or expects or hopes to do business in the future.

Not only does the American manufacturer need protection against dishonesty but also against unfortunate coincidences whereby domestic good-will may be turned into ridicule, vulgarity or ill-will in a foreign country where a word or design in an American trade mark may have a different meaning. There are now in existence associations of trade mark specialists whose services may be enlisted to protect the American manufacturer and assure him of the rights, profits and privileges accruing to his properly registered trade mark in any country of the globe. —Mida's Trade Mark Bureau, Chicago, Illinois.

"MIRACLE" BLOW OUT PATCH

The ordinary blow-out patch built of duck is not unpuncturable, but in the "Miracle" blow-out patch a successful effort has been made to make it so. This has been accomplished by inserting between eight-ounce rubberized duck plies a shaped single ply of stiff rawhide, held in place by rubber cement. The outer surfaces of rubber are lightly cured by the vapor process. The patch is intended as an outside temporary tire repair, and is provided with side flaps for lacing in place. It is claimed to outlast the tire in service and comes in five sizes.—Rawhide Products Corporation, 1834 Broadway, New York.

"ARCAR," "VELCAR" AND "FLEXCAR" BELTING

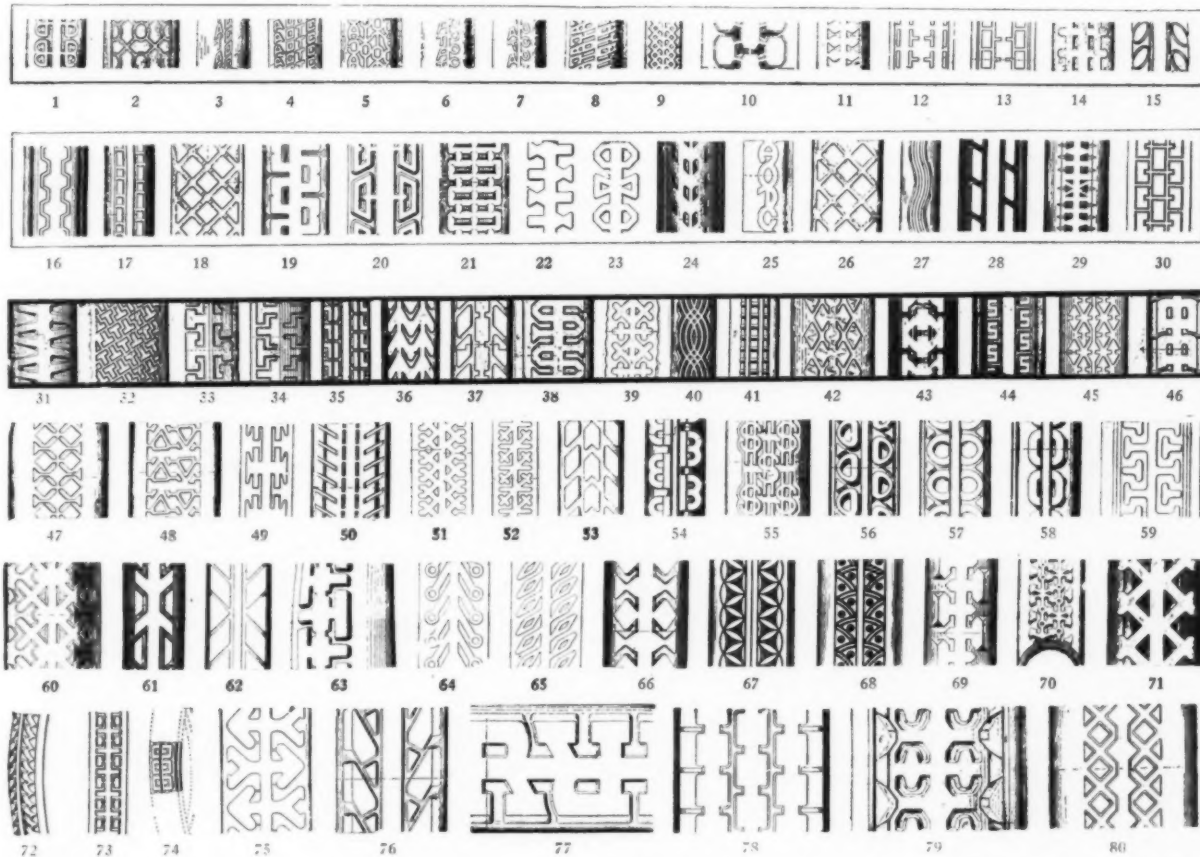
Three brands of rubber belting which have been but a short time on the market are named "ArCar," "VelCar" and "FlexCar," each brand having been designed for a specific purpose. ArCar and VelCar are for intermediate and light service, respectively; FlexCar belting is made in narrow widths, and without sacrificing anything of strength it is sufficiently pliable to run on very small pulleys at unusually high speeds. These belts are manufactured by the makers of the well known "Carspring" rubber belts, under the same standards of high quality of material and workmanship.—New Jersey Car Spring & Rubber Co., Inc., Jersey City, New Jersey.

WHILE THE TOTAL VALUE OF BRITISH MONTHLY IMPORTS STEADILY decreased during 1920, certain classes of imports showed progressive increases. Among these were rubber tires, which, according to returns received by the Foreign Information Department of the Bankers' Trust Co., New York City, were valued at £1,200,000 in the period January 1 to March 31, 1920, and in the period July 1 to September 1, 1920, increased to £1,731,000, a gain of 44.6 per cent.

"CRUDE RUBBER AND COMPOUNDING INGREDIENTS," BY HENRY C. Pearson, is a valuable reference book for every one interested in rubber.

Pneumatic Tire Tread Designs

April, 1920, and June, 1920, to August, 1920



CUT	PATENT	PATENTEE OR ASSIGNEE AND ADDRESS.
(1)	54,373	W. P. Braender, Passaic, New Jersey.
(2)	54,412	The Cleveland Rubber Corp. Co., Cleveland, Ohio.
(3)	54,521	E. O. Blekre, Sioux City, Iowa.
(4)	54,522	E. O. Blekre, Sioux City, Iowa.
(5)	54,523	E. O. Blekre, Sioux City, Iowa.
(6)	54,580	E. O. Blekre, Sioux City, Iowa.
(7)	54,581	E. O. Blekre, Sioux City, Iowa.
(8)	54,582	E. O. Blekre, Sioux City, Iowa.
(9)	54,560	T. R. Palmer, Erie, Pennsylvania.
(10)	54,570	O. H. Williams, Columbus, Ohio.
(11)	54,592	W. B. Buckley, Washington, D. C.
(12)	54,624	Zonta Tire & Rubber Co., Sioux City, Iowa.
(13)	54,625	Zonta Tire & Rubber Co., Sioux City, Iowa.
(14)	54,647	The McLean Tire & Rubber Co., East Liverpool, Ohio.
(15)	54,694	F. W. Smith, Rutherford, New Jersey.
(16)	54,408	C. C. Gates, Denver, Colorado.
(17)	54,434	J. Martin, New York City.
(18)	54,496	The Portage Rubber Co., Barberton, Ohio.
(19)	54,534	J. W. Denmead, Akron, Ohio.
(20)	54,536	C. E. Eckrode, Newark, New Jersey.
(21)	54,551	H. Ives, Chippewa Falls, Wisconsin.
(22)	54,555	Empire Rubber & Tire Corp., Trenton, New Jersey.
(23)	54,556	Empire Rubber & Tire Corp., Trenton, New Jersey.
(24)	54,576	Sterling Tire Corp., Rutherford, New Jersey.
(25)	54,583	E. O. Blekre, Sioux City, Iowa.
(26)	54,598	The Portage Rubber Co., Barberton, Ohio.
(27)	54,599	W. H. Clarke, Elyria, Ohio.
(28)	54,608	F. S. Dickinson, New York City.
(29)	54,691	F. A. Seebach, Akron, Ohio.
(30)	54,698	The Rotary Tire & Rubber Co., Zanesville, Ohio.
(31)	54,912	Ten Broeck Tyre Co., Louisville, Kentucky.
(32)	54,919	G. F. Hoffman, Akron, Ohio.
(33)	54,920	G. P. Hoffman, Akron, Ohio.
(34)	54,921	G. P. Hoffman, Akron, Ohio.
(35)	54,955	Parker Tire & Rubber Co., Indianapolis, Ind.
(36)	55,057	Fort Wayne Tire & Rubber Manufacturing Co., Fort Wayne, Indiana.
(37)	55,100	J. Tenney, Jr., Plainfield, New Jersey.
(38)	55,094	H. J. Smith, Binghamton, New York.
(39)	54,975	C. J. Venn, Chicago, Illinois.

CUT	PATENT	PATENTEE OR ASSIGNEE AND ADDRESS.
(40)	55,026	W. H. Clarke, Elyria, Ohio.
(41)	55,048	I. V. Humphrey, Highland Park, Pennsylvania.
(42)	55,059	Wear-Well Tire Co., Mahonington, Pennsylvania.
(43)	55,080	E. A. Reid, Somerset, New Jersey.
(44)	55,087	A. B. Schleicher, Pasadena, California.
(45)	55,101	E. H. Trump, Barberton, Ohio.
(46)	55,091	F. E. Shannon, Akron, Ohio.
(47)	55,118	W. E. Duersten, New Castle, Pennsylvania.
(48)	55,119	W. E. Duersten, New Castle, Pennsylvania.
(49)	55,141	The Rotary Tire & Rubber Co., Zanesville, Ohio.
(50)	55,144	The Overland Tire & Rubber Co., Omaha, Nebraska.
(51)	55,146	The Ashland Tire & Rubber Co., Ashland, Ohio.
(52)	55,147	The Ashland Tire & Rubber Co., Ashland, Ohio.
(53)	55,216	Howe Rubber Corporation, a Delaware Corporation.
(54)	55,236	G. E. Bennie, Nashville, Tenn.
(55)	55,287	E. L. Lawlor, Youngstown, Ohio.
(56)	55,313	W. C. Owen, Cleveland, Ohio.
(57)	55,314	W. C. Owen, Cleveland, Ohio.
(58)	55,315	W. C. Owen, Cleveland, Ohio.
(59)	55,332	G. N. Schell, Cleveland, Ohio.
(60)	55,122	Standard Four Tire Co., Keokuk, Iowa.
(61)	55,132	Ajax Rubber Co., Inc., New York City.
(62)	55,140	Empire Tire & Rubber Corp., Trenton, N. J.
(63)	55,142	Standard Tire Co., Willoughby, Ohio.
(64)	55,239	The Ashland Tire & Rubber Co., Cleveland, Ohio.
(65)	55,240	The Ashland Tire & Rubber Co., Cleveland, Ohio.
(66)	55,190	Fidelity Tire & Rubber Co., Massillon, Ohio.
(67)	55,301	J. J. Novak, Omaha, Nebraska.
(68)	55,302	J. J. Novak, Omaha, Nebraska.
(69)	55,364	The Ashland Tire & Rubber Co., Ashland, Ohio.
(70)	55,378	H. E. Grooms, Columbus, Georgia.
(71)	55,171	J. L. Hanley, Chicago, Illinois.
(72)	55,414	D. F. Crow, Omaha, Nebraska.
(73)	55,420	H. T. Gauss, Chicago, Illinois.
(74)	55,425	W. Kline, Mogadore, Ohio.
(75)	55,411	World Tire Corporation, Chicago, Illinois.
(76)	55,416	J. W. Denmead, Akron, Ohio.
(77)	55,437	F. E. Shannon, Akron, Ohio.
(78)	55,459	Standard Four Tire Co., Keokuk, Iowa.
(79)	55,506	J. & D. Tire Co., Charlotte, North Carolina.
(80)	55,507	W. E. Duersten, New Castle, Pennsylvania.

The New York Crude Rubber Market During 1920

THE YEAR 1920 has witnessed the most remarkable decline in crude rubber prices and increase in spot stocks in the history of the industry, these conditions having been brought about by the decreasing demand due to the inevitable readjustment period following a great war, together with the rapidly increasing plantation production.

The year opened at the peak of a rising market with continued demand and prices at the highest point they had shown in some months, plantations commanding higher prices than the best grades of Brazilian, due in large part to the firm handling of the Singapore and London markets. New York stocks were large, but not more than would satisfy the anticipated demand.

Excessive stocks in the East had not been dumped upon the market. On January 2 spot prices were: first latex crêpe, 55½ cents; ribbed smoked sheets, 55 cents; upriver fine, 49½-50 cents. After declining slightly in the first week of January, the market remained very steady, holders refusing to concede much to bidders until toward the close, when, on January 26, spot prices reached 52 cents for first latex crêpe, futures 53 cents; ribbed smoked sheets, 52 cents; futures, 53 cents; upriver fine, 47 cents.

During February the market continued steady, declining gradually to the close, spot prices February 25 being: first latex crêpe, 46-47 cents; ribbed smoked sheets, 46½ cents; upriver fine, 42½ cents. First latex crêpe futures were: April-June, 47½ cents; July-December, 49½ cents; ribbed smoked sheet futures were one-half cent less than latex. Manufacturers bought little, but trading among dealers was good. As in London and Singapore the dealing in futures was dull owing to the uncertainty in exchange.

Prices remained firm, with minor fluctuations, and the market quiet throughout March, despite the partial recovery in exchange and very large arrivals, mostly, however, to fill forward orders. There was some trading among dealers, but manufacturers did little buying. On March 25 spot prices were: first latex crêpe, 47½ cents; ribbed smoked sheets, 47 cents; upriver fine, 42-42½ cents. First latex crêpe and ribbed smoked sheet futures were: April-June, 49 cents; July-December, 51 cents.

The April market was dull, with a sharp decline toward the close. Only speculative buying was in evidence, from which manufacturers refrained. Large arrivals continued and prices were affected by the rate of exchange and railroad strikes. Pará were least affected in price, although supported by little trading. First latex crêpe, spot, which was 46½ cents on April 1, sold for 42½ cents on April 26; ribbed smoked sheets, spot, dropped from 46 to 42½ cents between the same dates, while upriver fine, spot, remained at 42 cents. First latex crêpe futures were: May-June, 43 cents; July-December, 44 cents; January-June, 1921, 47 cents. Smoked sheet ribbed futures were: May-June, 42½ cents; July-December, 44½ cents; January-June, 1921, 47 cents.

Dullness and decline continued in May, manufacturers buying only in small lots and showing little interest in the market owing to the long series of railroad strikes, car shortages and freight embargoes which hampered industrial operations generally. Rub-

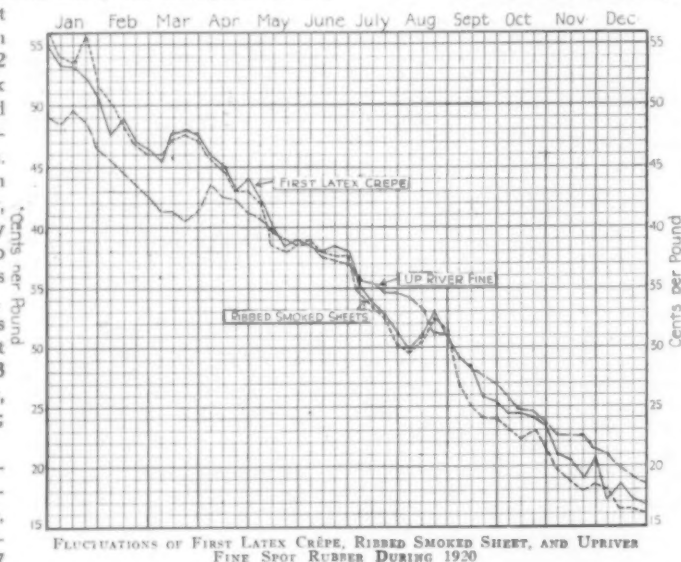
ber manufacturers in the Akron district were forced to curtail their output practically 50 per cent by stopping work on Saturdays and discontinuing night shifts. The only buying activity occurred among dealers securing spot rubber to cover contracts as the market sagged off. The London and Singapore markets ruled firmer and higher than New York, when spot prices on May 24 had dropped to 39 cents for first latex crêpe; ribbed smoked sheets, 38½ cents; upriver fine, 39 cents. First latex crêpe futures were: July-September, 40 cents; October-December, 42½ cents; January-June, 1921, 44-45 cents. Ribbed smoked sheet futures were about the same as latex.

While much speculative activity occurred in June, the regular rubber market continued dull, with few sales and slightly declining prices. Transportation difficulties continued to curtail demand by manufacturers, and the general tightness of money and inability to procure loans prevented dealers from acting upon the low prices in the East and securing stocks in anticipation of future rise. Manufacturers had sufficient stocks under existing conditions. They anticipated lower prices and also held back because of confused forecasts in the tire building trade resulting from the labor troubles of fabric makers and the lessened demand for tires due to the long-continued bad Spring weather. On June 25

spot prices were: first latex crêpe, 38 cents; ribbed smoked sheets, 37-38 cents; upriver fine, 37½ cents. First latex crêpe futures were: July-September, 40 cents; October-November, 43½ cents; January-June, 1921, 46 cents. Ribbed smoked sheet futures were one-half to one cent lower than latex.

Conditions were generally quiet and prices steady, although tending downward throughout July, and when first latex crêpe, spot, reached 30 cents during the last week of the month a low record was established. For the first time during the year upriver fine, spot, gained a substantial lead of 4½-5 cents over first latex crêpe. The scarcity of both buyers and sellers was an important factor in the support of the market. Dealers were about the only buyers, manufacturers believing the bottom had not been reached, and some becoming September sellers, as futures were all out of proportion to spot quotations. On July 26 spot prices were: first latex crêpe, 32 cents; ribbed smoked sheets, 31½ cents; upriver fine, 34½ cents. First latex crêpe futures were: July-September, 33½ cents; October-December, 37 cents; January-June, 42½ cents. Ribbed smoked sheet futures were: July-September, 33¼ cents; October-December, 36¼ cents; January-June, 42 cents.

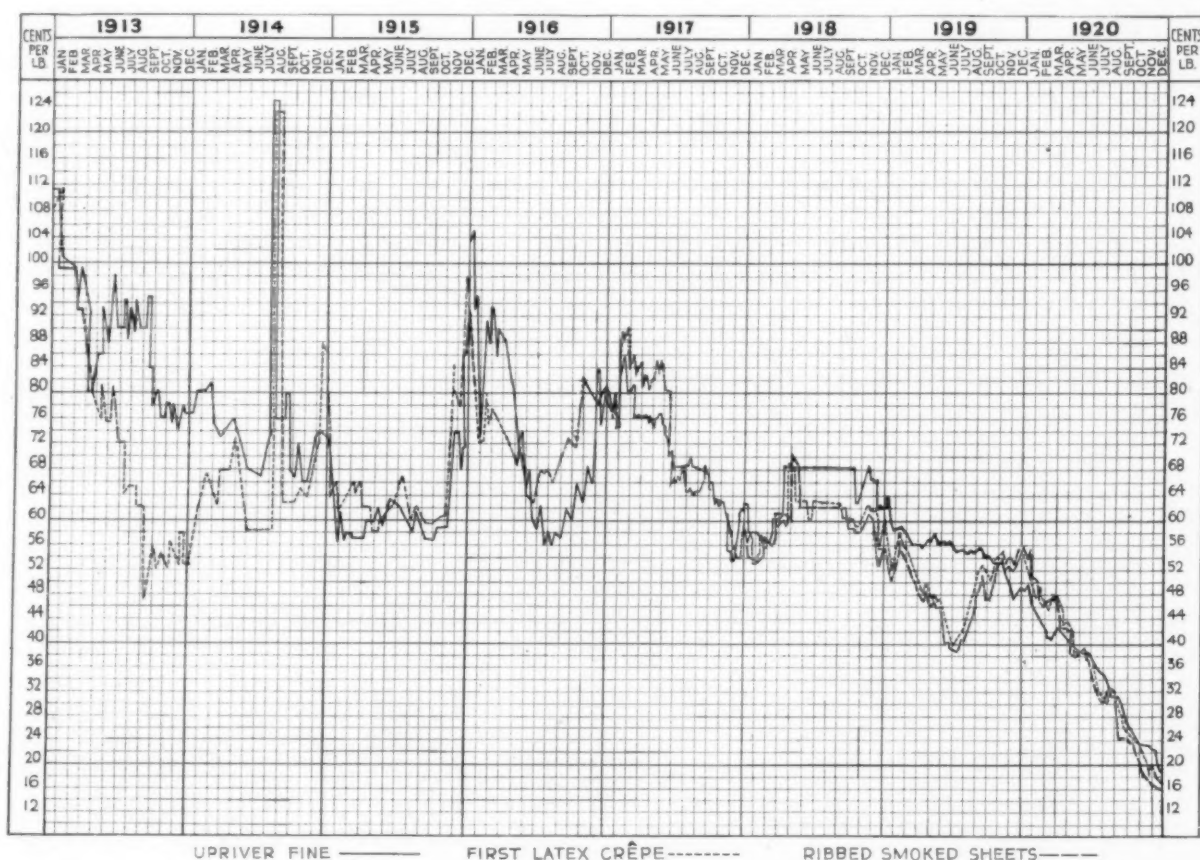
Quiet conditions prevailed throughout August. Curtailment of tire production was extended, reducing rubber consumption about 8,000 tons monthly. Arrivals for the year had been 36,000 tons greater than for the same period of 1919, and 20,000 tons was reported in New York storage. Depression ruled the first week, with only small lot buying for immediate requirements, sending both first latex crêpe and ribbed smoked sheets, spot, to a new low level of 29½ cents. Later in the month contract covering on the part of short interests resulted in slight spot advances to 31



cents for first latex crêpe on August 26; ribbed smoked sheets, 30-30½ cents; upriver fine, 30-31 cents. First latex crêpe futures were: October-December, 34 cents; January-June, 38 cents. Ribbed smoked sheet futures were about one cent less than latex. The price lead which upriver fine gained over first latex crêpe at the end of July was lost in August, but partially regained in October for the balance of the year.

With practically no factory demand and limited business among dealers, most of whom had withdrawn, fearing greater losses, the September market weakened and spot values dropped to new low records of 24½ cents for first latex crêpe; ribbed smoked

sheets, 23½ cents; upriver fine, 25 cents. New York stocks increased to 26,000 tons, including considerable mouldy rubber selling at 21½-23 cents. Arrivals were 2,400 tons less than in September, 1919, and continued less than normal to the end of the year, indicating that buying had been restricted in the producing centers and surplus stocks stored by large holders. On September 27 spot prices were: first latex crêpe, 25½-26 cents; ribbed smoked sheets, 23¼-24½ cents; upriver fine, 25-26 cents. First latex crêpe futures were: October-December, 26½ to 27½ cents; January-June, 30 to 31 cents. Ribbed smoked sheet futures were: October-December, 25 cents; January-June, 28 to 30 cents.



NEW YORK SPOT RUBBER PRICES. UPRIVER FINE AND FIRST LATEX CRÊPE, 1913-1920. RIBBED SMOKED SHEET, 1918-1920.

UNITED STATES CRUDE RUBBER IMPORTS FOR 1920 (BY MONTHS)

1920	Plantations	Parás	Africans	Centrals	Guayule	Maniçoba and Matto Grosso	Balata	Miscellaneous Gum	Waste	Totals	1919*
January	17,799	2,620	821	111	.....	.....	65	634	351	22,401	7,235
February	29,681	2,456	558	265	.....	.....	67	614	309	33,984	17,456
March	28,533	2,463	514	23	114	3	13	983	1,252	33,898	28,223
April	21,036	1,893	628	29	79	10	22	812	448	24,957	28,146
May	24,443	2,025	662	95	113	.....	45	1,059	224	28,666	16,348
June	12,911	1,352	427	27	164	.....	7	552	166	15,606	16,319
July	14,695	1,115	34	40	.....	.....	8	1,283	312	17,487	17,965
August	12,730	590	13	75	156	.....	67	1,135	300	15,066	11,067
September	10,974	459	99	8	74	22	44	516	218	12,414	14,036
October	8,759	1,613	27	17	223	.....	33	498	425	11,595	28,888
November	5,695	654	39	12	48	.....	68	27	608	7,151	15,674
December	9,716	1,151	59	11	32	51	42	.....	376	11,438	24,675
Totals, 12 months, 1920	196,972	18,391	3,881	713	1,037	86	481	8,113	4,989	234,663	.....
Totals, 12 months, 1919	192,270	27,058	3,340	1,422	1,501	441	.....	.....	.....	.....	226,032

*During 1919, there were actually received 231,510 tons, of which 5,478, not reported until 1920, are not included in figures published for either year.
Compiled by The Rubber Association of America, Inc.

In October, continued depression, with several tire factories closed and very little trading among dealers, brought spot rubber to 23½ cents for first latex crêpe; ribbed smoked sheets, 21 cents; upriver fine, 24 cents. New York stocks increased to 30,000 tons, London stocks to 40,000 tons. On October 26 spot prices were: first latex crêpe, 24 cents; ribbed smoked sheets, 22 cents; upriver fine, 24½ cents. First latex crêpe futures were: November-December, 24 cents; January-June, 27 cents. Ribbed smoked sheet futures were: November-December, 22½ cents; January-June, 26 cents.

Pronounced weakness continued throughout November, with fractional spot declines to 18 cents for first latex crêpe; ribbed smoked sheets, 17 cents; upriver fine, 22 cents. Although buyers were scarce and sellers shy, considerable small lot factory business was done in futures, and some spot stocks were bought and stored. The forced liquidation of several speculative and weak traders would have thrown their commitments on the market with disastrous results but for the generous support of large importers and dealers. On November 24 spot prices were: first latex crêpe, 19 cents; ribbed smoked sheets, 17½ cents; upriver fine, 21 cents. First latex crêpe futures were: January-March, 22½ cents; April-June, 25½ cents. Ribbed smoked sheet futures were: January-March, 21 cents; April-June, 24 cents.

During December the market remained dull and featureless with little buying other than small spot lots, spot prices falling to new low levels of 16¼ cents for first latex crêpe on December 27; ribbed smoked sheets, 16 cents; upriver fine, 18 cents. January-March deliveries for the two plantation sorts reached 17½ and 17 cents, respectively, and in London and Singapore futures declined along with the New York spot and nearby market. Arrivals of good quality mouldy rubber were picked up as bargains by both dealers and manufacturers at 2 to 3 cents below these prices. Parás still lacked demand.

Throughout the year the lower grades of rubber were weak, with the exception of guayule, which was comparatively firm until November. Gutta percha showed strength, also balata, owing to the golf ball demand and the holding of supplies in primary sources.

Every month, as new low price levels were recorded, it was believed in many quarters that the bottom had been reached. Uncertainty will continue to cloud the situation, however, until the production of rubber goods, especially tires, returns to normal and active buying is again resumed by manufacturers. Optimists believe rubber goods production will be in full swing by April 1. Meanwhile the industry as a whole is in strong hands, competent to cope with the unusual conditions.

CEYLON RUBBER IMPORTS AND EXPORTS

	January 1 to November 29	
	1919	1920
IMPORTS		
Crude rubber:		
From Straits Settlements.....pounds	2,588,351	2,448,995
India.....	1,539,029	1,510,519
Burma and other countries.....	3,436	42,768
Totals.....pounds	4,130,816	4,002,282
EXPORTS		
Crude rubber:		
To United Kingdom.....	26,271,286	39,825,881
Belgium.....	29,120	169,550
France.....	383,400	709,913
Netherlands.....	661,341	447,537
Italy.....	230,720	2,240
Norway.....	13	56
Australia.....	98,755	302,516
United States.....	55,580,238	34,777,176
New South Wales.....	171,812	447,537
Canada and Newfoundland.....	863,834	537,610
India.....	2,649	2,176
Straits Settlements.....	454	44,800
Japan.....	267,427	231,810
Totals.....	83,668,988	77,969,655

Compiled by the Ceylon Chamber of Commerce.

LOWEST AND HIGHEST NEW YORK SPOT RUBBER PRICES, 1913-1920

	January	February	March	April	May	June	July	August	September	October	November	December
1913—First latex.....	103	96	88	76	83	77	66	70	52	50	52	53
Smoked sheets.....	111	101	96	81	83	72	70	72	64	59	60	60
Upriver fine.....	113	102	96	81	82	89	83	93	72	78	78	71
Upriver coarse.....	109	96	88	77	88	62	50	53	48	44	44	47
1914—First latex.....	61	58	64	64	57	54	57	60	52	54	58	73
Smoked sheets.....	64	62	64	64	57	57	56	60	52	54	58	82
Upriver fine.....	73	73	73	73	69	68	68	73	64	64	63	70
Upriver coarse.....	44	44	43	43	41	38	42	39	43	47	46	51
1915—First latex.....	64	57	59	59	59	60	63	59	57	61	63	76
Smoked sheets.....	64	57	59	57	59	61	63	59	57	61	63	76
Upriver fine.....	75	61	61	61	61	61	61	61	61	61	61	79
Upriver coarse.....	58	44	45	46	45	45	47	44	41	42	46	57
1916—First latex.....	103	72	83	74	82	62	52	53	54	60	69	68
Smoked sheets.....	102	75	87	78	86	65	55	56	56	62	70	82
Upriver fine.....	109	77	88	77	88	65	55	56	56	62	70	82
Upriver coarse.....	76	52	59	52	59	41	39	40	42	46	47	56
1917—First latex.....	80	75	85	81	83	65	66	67	66	65	61	54
Smoked sheets.....	80	75	85	81	83	65	66	67	66	65	61	54
Upriver fine.....	79	77	86	75	84	68	68	69	68	66	62	54
Upriver coarse.....	53	50	53	51	51	48	48	48	46	48	46	41
1918—First latex.....	58	52	57	59	63	63	63	63	60	59	61	63
Smoked sheets.....	58	53	57	59	63	63	63	63	59	60	61	63
Upriver fine.....	57	56	58	60	62	62	62	62	58	59	60	61
Upriver coarse.....	41	35	34	34	38	40	40	40	35	40	40	40
1919—First latex.....	58	56	51	47	50	45	39	45	45	49	53	51
Smoked sheets.....	58	54	50	46	49	44	38	44	44	49	52	51
Upriver fine.....	61	58	55	56	56	55	55	55	54	55	55	54
Upriver coarse.....	36	34	35	34	34	32	32	32	32	35	35	35
1920—First latex.....	51	45	46	42	46	39	30	33	24	20	18	16
Smoked sheets.....	51	45	46	42	46	39	30	33	24	20	18	16
Upriver fine.....	50	42	43	40	43	37	30	35	26	23	20	18
Upriver coarse.....	34	31	31	30	32	27	22	20	16	15	14	14

Review of the Crude Rubber Market

NEW YORK

At the close of 1919, the plantation rubber market reacted from the lowest level known in rubber history and developed a firmer tone in the early part of the new year. Spot and near-by rubber moved up from 15½ to 19 cents and futures advanced accordingly. The market was further strengthened at this time by the rise of several points in sterling exchange, resulting in short covering on the part of dealers who were unable to buy in primary markets on account of the exchange situation.

Due to prevailing conditions the weak element were apparently eliminated from the market with the old line interests in control. Sales were only made when they could be covered at a profit. Mouldy ribbed smoked sheet was offered at bargain prices but ribs from selected estates and free from mould were at a premium. There were few sellers of futures owing to the exchange difficulties. First latex crêpe was firmly held at comparatively high prices but the offers were not large.

The market continued quiet and dull until the end of the month with very little factory business and almost a total absence of selling pressure. Quotations on the standard grades were firmly held at prices that were from 1½ to 3¾ cents higher than at the first of the month.

The influence of the final settlement of the Goodyear company's affairs is strongly felt in the rubber market as the many importers and dealers who are involved are cautious and loth to trade.

The prices of Pará sorts have not responded to the improvement noted in plantations due to unfavorable exchange, and consequently the demand has been small.

Imports for December, 1920, were 11,020 tons, compared with 24,675 tons last year. Total imports for the twelve months of 1920 were 221,080 tons, compared with 231,510 tons for 1919.

The Council of the Rubber Growers' Association is reported to be in favor of the request made by rubber growers in Malaya to the local authorities for legislation to restrict rubber production by 50 per cent.

Spot and future quotations in standard plantations and Brazilian sorts were as follows:

PLANTATIONS. January 3, first latex crêpe, 17 cents; January-March, 17½ cents; April-June, 18½ cents; July-December, 22 cents.

January 24, first latex crêpe, 20 cents; January-March, 21½ to 22 cents; April-June, 23 cents; July-December, 26 cents.

January 3, ribbed smoked sheets, 16 cents; January-March, 16½ cents; April-June, 17½ cents; July-December, 21 cents.

January 24, ribbed smoked sheets, 19¾ cents; January-March, 21 cents; April-June, 21½ cents; July-December, 25 cents.

January 3, No. 1, amber crêpe, 14 cents.

January 24, No. 1, amber crêpe, 17 cents.

January 3, No. 1, rolled brown crêpe, 11½ cents.

January 24, No. 1, rolled brown crêpe, 13 cents.

SOUTH AMERICAN PARÁS AND CAUCHO. January 3, upriver fine, 18 cents; islands fine, 18 cents; upriver coarse, 14 cents; islands coarse, 14 cents; Cametá coarse, 11 cents; caucho ball, 14 cents.

January 24, upriver fine, 18½ to 19 cents; islands fine, 17½ to 18 cents; upriver coarse, 13 to 14 cents; islands coarse, 11½ cents; Cametá coarse, 11 cents; caucho ball, 12½ to 15 cents.

NEW YORK QUOTATIONS

Following are the New York spot quotations, for one year ago one month ago, and January 24, the current date:

	February 2, 1920	January 3, 1921	January 24, 1921
PLANTATION HEVEA—			
First latex crêpe.....	\$0.52¼ @	\$0.16¾ @	\$0.20 @
Amber crêpe No. 1.....	.52 @	.14 @	.17 @
Amber crêpe No. 2.....	.51 @	.13 @	.16 @
Amber crêpe No. 3.....	.50 @	.12 @	.15 @
Amber crêpe No. 4.....	.48 @	.11 @	.13 @
Brown crêpe, thick and thin	.48 @	.10 @	.15 @
Brown crêpe, specky.....	.46 @	.09 @	.13 @
Brown crêpe, rolled.....	.42 @	.11 @	.13 @
Smoked sheet, ribbed, std.	.52 @	.16 @	.19¼ @
Smoked sheet, plain, std.	.51 @	.15 @	.18¼ @
Unsmoked sheet, standard.	.48 @	.14 @	.17½ @
Colombo scrap No. 1.....	.37 @	.12 @	.15 @
Colombo scrap No. 2.....	.35 @	.11 @	.14 @
EAST INDIAN—			
Assam crêpe.....	.46 @.47	@	@
Assam onions.....	.46 @.48	@	@
Penang black scrap.....	.38 @	.08 @	*.08 @
PONTIANAK—			
Ranjermissin.....	.13 @	.08 @	.07 @.08
Palembang.....	@	.08¼ @	.09½ @
Pressed block.....	.27 @	.12½ @	.12 @.13
Sarawak.....	.11 @	.07½ @	.07 @
SOUTH AMERICAN—			
PARÁS—			
Upriver, fine.....	.47 @	.18 @.18½	.18½ @.19½
Upriver, medium.....	.39 @	.15 @.16	.15 @.16
Upriver, coarse.....	.34 @	.14 @	.13 @.14
Upriver, weak, fine.....	.37 @	.14½ @	*.14 @
Islands, fine.....	.45 @	.18 @.18½	*.17½ @.18
Islands, medium.....	.45 @	.15 @	.13 @
Islands, coarse.....	.22 @	.11½ @	.11 @.11½
Cametá, coarse.....	.23 @	.12 @	.11 @.11½
Madeira, fine.....	.47 @	.23 @.24	.21 @.22
Acre Bolivian, fine.....	.47 @	.18½ @.19	.19 @.22
Peruvian, fine.....	.47 @	.16 @.17	.17 @.17½
Tapajos, fine.....	.46 @	.17½ @.18	.17 @.17½
CAUCHO—			
Upper caucho ball.....	.34 @	.14½ @.15	.14 @.15
Lower caucho ball.....	.30 @	.10 @	.12½ @

	February 2, 1920	January 3, 1921	January 24, 1921
MANICOBAS—			
Ceará negro heads.....	.35 @	*.12 @	*.12 @
Ceará scrap.....	.32 @	*.06 @	*.07 @
Manicoba, 30% guarantee	.26 @	*.10 @	.10 @
Mangabeira thin sheet...	.35 @	*.15 @	.09 @
CENTRALS—			
Corinto scrap.....	.33 @	.12 @	.11 @.12
Esmeralda sausage.....	.33 @	.12 @	.11 @.12
Central scrap.....	.32 @	.12 @	.11 @.12
Central scrap and strip...	.30 @	.10 @	.09 @.10
Central wet sheet.....	.23 @	.08 @	.04 @.05
Guayule, 20% guarantee...	.27 @	*.20 @	*.20 @
Guayule, washed and dried	.37 @	*.30 @	*.28 @
AFRICANS—			
Niger flake, prime.....	.18 @	.15 @	.17 @
Benguela, extra No. 1, 28%	.27 @	@	@
Benguela, No. 2, 32½%	@	.06½ @	@
Conakry niggers.....	.40 @	@	@
Congo prime, black upper...	.39 @	.14 @	.15 @
Congo, prime, red upper...	.37 @	.08 @	.12 @
Kassai, black.....	.40 @	@	.15 @
red.....	.36 @	@	@
Massai sheets and strings...	.40 @	@	@
Rio Nunez ball.....	@	@	@
Rio Nunez sheets and strings	.40 @	@	@
GUTTA PERCHA—			
Gutta Siak.....	.26 @	.16 @.17	.14 @.16
Red Macassar.....	2.90 @	2.30 @3.00	2.25 @2.60
BALATA—			
Block, Ciudad Bolivar....	.56 @	.62 @	.57 @.58
Colombia.....	.50 @	.40 @	.36 @.37
Panama.....	.46 @	.30 @.35	.24 @.30
Surinam sheet.....	.82 @	.69 @	.67 @.68
amber.....	.84 @	.75 @	.70 @.71

*Nominal.

RECLAIMED RUBBER

There has been less and less activity in the market for reclaimed rubber during the past three months and at last the point has been reached where practically all of the reclaimers have either

closed down their plants completely or are operating them on a basis of ten per cent of capacity. Here and there a manufacturer of rubber goods is requisitioning some reclaimed rubber made and held on contract, but nothing is doing in the way of new orders. In fact, there is no rubber scrap market and reclaimers cannot today determine production cost for that reason.

In spite of the general stagnation in the trade reclaimers, as well as other rubber manufacturers, are confidently hoping for the dawn presently of a day of activity and prosperity.

NEW YORK QUOTATIONS

JANUARY 24, 1921

Prices subject to change without notice

STANDARD RECLAIMS:

Floating .....	.....	.....	.....	.....	.....
Friction .....	.....	.....	.....	.....	.....
Mechanical .....	.....	.....	.....	.....	.....
Shoe .....	.....	.....	.....	.....	.....
Tires, auto .....	.....	.....	.....	.....	.....
truck .....	.....	.....	.....	.....	.....
White .....	.....	.....	.....	.....	.....

*Nominal.

COMPARATIVE HIGH AND LOW NEW YORK SPOT RUBBER PRICES

	January			1919		
	1921*	1920	1919	1921*	1920	1919
PLANTATIONS:						
First latex crêpe
Smoked sheet ribbed
PARAS:						
Upriver, fine
Upriver, coarse
Islands, fine
Islands, coarse
Cameta

*Figured to January 26, 1921.

ANTWERP RUBBER MARKET

GRISAR & CO., Antwerp, report [December 31, 1920]:

Throughout the month little change was noted, the market continued weak, with few transactions. At the end of the month the tone became firm at the close. There were no sellers. Spot December, 0s. 10½d.; January-March, 0s. 10½d.; April-June, 0s. 11½d.; January-July, 0s. 11d. Fine Para, 1s. 1d.

Statistics for the week were as follows: Arrivals, 1,832 tons; sales, 630 tons; stocks, 50,244 tons, against 22,283 tons in 1919. No business was done locally. Arrivals, by the "Mayumbe," about 19,790 kilos. Stock on hand this day, about 1,640 tons.

Little interest was shown in the futures market, and prices dropped about 0.35 francs for the first six months. The tendency of the market continued quiet. On the date of this report the futures market was closed.

AMSTERDAM RUBBER MARKET

JOOSTEN & JANSSEN, Amsterdam, report [December 31, 1920]:

The last week of this year has not brought improvement on the rubber market.

Prices showed even a further downward tendency while the turnover remained extremely small, this time, owing to resistance from buyers as well as from sellers.

At the close, a small improvement was perceptible; so that this year still closes with a comparatively good tendency, but rather at the lowest prices, namely:

Hevea crêpe F.—56. Sheets F.—53 on the spot.
Hevea crêpe F.—57. Sheets F.—54 January-March.
Hevea crêpe F.—63. Sheets F.—59 April-June.

HAMBURG RUBBER MARKET

EFFECTIV-ROHGUIMMAKLER-VEREIN, Hamburg, report [December 17, 1920]:

The market tendency was again somewhat weak and sellers were more ready. As expected, the December conditions in London exercised strong pressure. The supply business moved within narrow limits for spot, while there was lively demand for delivery. Reports from the East were conflicting; while some markets were weaker like the European markets, owners remained firm on others. Arrivals were middling. The prices were as follows:

No. 1 first latex crêpe .....	.....	.....	.....	.....	.....
Ribbed smoked sheets, standard .....	.....	.....	.....	.....	.....
Smoked sheets, lower grade .....	.....	.....	.....	.....	.....
Brown crêpe, clean .....	.....	.....	.....	.....	.....
Brown crêpe, barky .....	.....	.....	.....	.....	.....
Dark crêpe .....	.....	.....	.....	.....	.....
Hard fine Para .....	.....	.....	.....	.....	.....
Caucho ball .....	.....	.....	.....	.....	.....
Black Congo .....	.....	.....	.....	.....	.....
South Cameroon .....	.....	.....	.....	.....	.....
No. 1, flake .....	.....	.....	.....	.....	.....
No. 1, Surinam balata sheet .....	.....	.....	.....	.....	.....
Jelutong .....	.....	.....	.....	.....	.....

SINGAPORE RUBBER MARKET

GUTHRIE & CO., LIMITED, Singapore, report [December 2, 1920]:

The weekly rubber auction held yesterday and today saw an improved demand at prices a shade lower than those paid last week. Standard ribbed smoked sheet sold from 37 to 38 cents, a decline of 1 cent, while a small quantity of standard pale crêpe was sold at 39/39½ cents. Sellers met the market on off-quality sheet for which there was a fair demand at prices ranging from 17 to 35 cents. Off quality crêpe was in good demand. Brown crêpes were not in demand and declined a further 2 cents. Dark and barky crêpes advanced 2 cents. The sale closed weak with crêpe 39, sheet 37 cents. Of 910 tons catalogued, 456 tons were sold. The following is the course of values:

	In Singapore per pound		Sterling Equivalent per pound in London	
Sheet, fine ribbed, smoked	37c	38c	1/ 0½	1/ 1
Sheet, good ribbed, smoked	17	36½	1/ 7	1/ 0½
Crêpe, fine pale	39	39½	1/ 13½	1/ 14
Crêpe, good pale	23	38½	1/ 9½	1/ 14
Crêpe, fine brown	20½	25	1/ 8½	1/ 9½
Crêpe, good brown	15	20	1/ 7	1/ 8½
Crêpe, dark	14	18½	1/ 6½	1/ 8
Crêpe, bark	10	16½	1/ 5½	1/ 7½

*Quoted in Straits Settlements currency. \$1 = \$0.567 United States currency.

PLANTATION RUBBER EXPORTS FROM JAVA*

	October		Ten Months Ended October 31	
	1919	1920	1919	1920
To Netherlands	461,000	655,000	2,025,000	4,107,000
Great Britain	466,000	1,045,000	6,153,000	7,343,000
Germany	19,000	19,000	89,000	89,000
France	12,000	215,000	23,000	23,000
Belgium	61,000	.....	117,000	.....
Other European destinations .....	.....	25,000	.....	25,000
United States of America	2,223,000	625,000	15,633,000	10,786,000
Singapore	520,000	275,000	4,594,000	3,469,000
Japan	2,000	.....	183,000	184,000
Australia .....	.....	.....	245,000	190,000
Other countries	10,000	.....	169,000	.....
Totals	3,682,000	2,717,000	29,217,000	26,333,000

Ports of origin:	1919	1920	1919	1920
Tandjong Priok	1,693,000	1,149,000	14,908,000	12,126,000
Samarang	29,000	85,000	460,000	431,000
Soerabaya	1,874,000	1,469,000	12,746,000	13,001,000

*September figures 1919 and 1920 revised.

STRAITS SETTLEMENTS RUBBER EXPORTS

An official cablegram from Singapore states that the exports of rubber from Straits Settlements ports in the month of November amounted to 7,509 tons, as compared with 9,882 tons in October and 13,426 tons in the corresponding month last year. The total export of the current year to the end of November was 118,111 tons as against 131,716 tons in 1919 and 57,537 tons in 1918. Appended are the comparative statistics:

	1918	1919	1920
January	4,302	14,404	13,125
February	2,334	15,661	17,379
March	8,858	20,908	5,931
April	6,584	10,848	9,768
May	13,587	13,845	15,617
June	6,515	5,059	11,663
July	1,978	7,818	10,773
August	1,249	8,933	6,673
September	6,209	10,476	9,791
October	3,260	8,338	9,882
November	2,661	13,426	7,509
Totals	57,537	131,716	118,111

FEDERATED MALAY STATES RUBBER EXPORTS

An official cablegram from Kuala Lumpur states that the exports of rubber from the Federated Malay States in the month of November amounted to 6,650 tons as compared with 8,323 tons in October and 9,848 tons in the corresponding month last year. The total export of the current year to the end of November was 84,692 tons as against 98,053 tons last year and 71,140 tons in 1918. Appended are the comparative statistics:

	1918	1919	1920
January	7,588	7,163	11,119
February	6,820	10,809	9,781
March	7,709	10,679	9,524
April	7,428	7,664	8,375
May	5,851	7,308	7,627
June	5,161	7,094	9,049
July	5,706	8,640	3,085*
August	5,291	10,626	3,554*
September	6,588	9,841	7,605
October	5,901	8,381	8,323
November	7,097	9,848	6,650
Totals	71,140	98,053	84,692

*The figures given above for July and August in the present year differ from those previously issued, and are in accordance with statistics since communicated by mail from Kuala Lumpur.

RUBBER EXPORTS FROM PENANG

	January 1 to December 1	1919	1920
To Great Britain.....piculs	208,115	233,612	3,796
Europe	122,409	145,123	
United States.....piculs	330,524	382,531	

*One picul equals 133½ pounds.

CRUDE RUBBER ARRIVALS AT ATLANTIC AND
PACIFIC PORTS AS STATED BY SHIPS'
MANIFESTS

	Fine	Medium	Coarse	Caucho	Totals Pounds
DECEMBER 23. By the S. S. "Frankmere," from Manáos.					
Poel & Kelly.....	229,317	2,042	59,239	11,395	301,993
Meyer & Brown, Inc.....	324,800				324,800
DECEMBER 23. By the S. S. "Frankmere," from Pará.					
Meyer & Brown, Inc.....	56,000				56,000
General Rubber Co.....					1,274
Various					99,372
JANUARY 1. By the S. S. "Cuyaba," from Pará.					78,890
Various					
JANUARY 1. By the S. S. "Hubert," from Pará.					
Poel & Kelly.....	140,217		3,715	22,622	166,554
W. R. Grace & Co.....					15,484
Paul Bertuch.....					7,109
JANUARY 1. By the S. S. "Hubert," from Manáos.					
Meyer & Brown, Inc.....	100,800				100,800
JANUARY 13. By the S. S. "Sallust," from Manáos.					
Poel & Kelly.....					30,968
General Rubber Co.....					6,468
Various					58,212
JANUARY 13. By the S. S. "Sallust," from Pará.					
Poel & Kelly.....					3,528
Various					9,506

PLANTATIONS

(Figured 180 pounds to the bale or case)

	Shipment from:	Shipped to:	Pounds.	Totals.
DECEMBER 21. By the S. S. "Shingo Maru," at San Francisco.				
Fred Stern & Co.....	Singapore	San Francisco	56,000	56,000
DECEMBER 27. By the S. S. "West Cheswald," at New York.				
Aldens' Successors, Inc.....	Soerabaya	New York	132,480	
East Asiatic Co., Inc.....	Soerabaya	New York	17,280	
Various	Soerabaya	New York	42,660	
Chas. T. Wilson Co., Inc.....	Colombo	New York	49,280	
Poel & Kelly.....	Colombo	New York	109,692	
Baring Brothers.....	Colombo	New York	591,360	
Meyer & Brown, Inc.....	Colombo	New York	302,400	
L. Littlejohn & Co., Inc.....	Java	New York	8,960	
Various	Colombo	New York	1,558,076	2,812,188
DECEMBER 30. By the S. S. "Talthybins," at Seattle.				
F. F. Henderson & Co.....	Singapore	New York	75,420	75,420
DECEMBER 31. By the S. S. "Caronia," at New York.				
Various	London	New York	84,240	84,240
JANUARY 2. By the S. S. "Saxonia," at New York.				
Various	London	New York	88,200	88,200
JANUARY 3. By the S. S. "West Modus," at New York.				
General Rubber Co.....	Belawan	New York	2,478,780	
Meyer & Brown, Inc.....	Belawan	New York	268,800	
Fred Stern & Co.....	Singapore	New York	22,400	
Goldman, Sachs & Co.....	Singapore	New York	168,000	
L. Littlejohn & Co., Inc.....	Colombo	New York	56,125	
Fred Stern & Co.....	Belawan-Deli	New York	242,920	
Baird Rubber & Trading Co.....	Singapore	New York	156,800	
William H. Stiles & Co.....	Singapore	New York	22,400	
J. T. Johnstone & Co., Inc.....	Singapore	New York	160,480	
Various	Singapore	New York	1,178,153	4,654,858
JANUARY 3. By the S. S. "Port Bowen," at New York.				
Various	London	New York	340,200	340,200
JANUARY 10. By the S. S. "Veendyk," at New York.				
Manhattan Rubber Mfg. Co.....	Soerabaya	New York	123,713	
Irwin-Harrison & Crossfield, Inc.....	Soerabaya	New York	23,417	
L. Littlejohn & Co., Inc.....	Java	New York	3,081	149,211
JANUARY 11. By the S. S. "Tydeus," at New York.				
The Fisk Rubber Co.....	Singapore	Chicopee Falls	116,480	
L. Littlejohn & Co., Inc.....	Singapore	New York	168,000	
Fred Stern & Co.....	Singapore	New York	22,400	
William H. Stiles & Co.....	Singapore	New York	2,240	
Baird Rubber & Trading Co.....	Singapore	New York	33,600	
J. T. Johnstone & Co., Inc.....	Singapore	New York	71,680	
Meyer & Brown, Inc.....	Singapore	New York	156,800	571,200
JANUARY 12. By the S. S. "Tydeus," at New York.				
L. Littlejohn & Co., Inc.....	Singapore	New York	163,800	
Meyer & Brown, Inc.....	Singapore	New York	193,860	
Rubber Trading Co.....	Singapore	New York	40,500	
W. T. Sargent & Sons.....	Singapore	New York	20,160	
Huth & Co.....	Singapore	New York	90,000	
W. R. Grace & Co.....	Singapore	New York	100,800	
W. G. Ryckman, Inc.....	Singapore	New York	1,080	

	Shipment from:	Shipped to:	Pounds.	Totals.
Mitsui & Co., Limited....	Singapore	New York	81,000	
Edward Maurer Co., Inc....	Singapore	New York	142,480	
Aldens' Successors, Inc....	Singapore	New York	94,840	
Edward Boustead & Co....	Singapore	New York	4,320	
The Fisk Rubber Co.....	Singapore	Chicopee Falls	129,240	
The Goodyear Tire & Rubber Co.....	Singapore	Akron	588,960	
General Rubber Co.....	Singapore	New York	680,860	
Various	Singapore	New York	532,640	
J. Aron & Co.....	Deli	New York	98,640	
Aldens' Successors, Inc....	Deli	New York	43,200	
East Asiatic Co., Inc....	Deli	New York	25,200	
Firestone Tire & Rubber Co.....	Deli	New York	101,160	
General Rubber Co. of Canada	Deli	New York	145,620	
Various	Deli	New York	536,940	
Various	Penang	New York	189,720	4,005,020

JANUARY 13. By the S. S. "Eastern Crown," at New York.				
L. Littlejohn & Co., Inc.....	Singapore	New York	201,600	
Fred Stern & Co.....	Singapore	New York	22,400	
William H. Stiles & Co.....	Singapore	New York	44,800	
Baird Rubber & Trading Co.....	Singapore	New York	67,200	
The Fisk Rubber Co.....	Singapore	Chicopee Falls	33,600	
Meyer & Brown, Inc.....	Singapore	New York	78,400	448,000

JANUARY 14. By the S. S. "Korea Maru," at San Francisco.				
Fred Stern & Co.....	Singapore	San Francisco	56,000	56,000

JANUARY 14. By the S. S. "Eastern Crown," at New York.				
Thos. A. Desmond & Co.....	Singapore	New York	156,600	
Chas. T. Wilson Co., Inc.....	Singapore	New York	301,860	
Mitsui & Co., Limited....	Singapore	New York	43,020	
L. Littlejohn & Co., Inc.....	Singapore	New York	197,280	
W. R. Grace & Co.....	Singapore	New York	108,000	
William H. Stiles & Co.....	Singapore	New York	54,000	
Rubber Trading Co.....	Singapore	New York	57,600	
Meyer & Brown, Inc.....	Singapore	New York	27,000	
Rogers-Pyatt Shellac Co.....	Singapore	New York	44,100	
General Rubber Co.....	Singapore	New York	1,043,100	
W. G. Ryckman, Inc.....	Singapore	New York	65,520	
F. R. Henderson & Co.....	Singapore	New York	83,880	
Fred Stern & Co.....	Singapore	New York	20,160	
Firestone Tire & Rubber Co.....	Singapore	Akron	96,480	
Various	Singapore	New York	1,042,120	
Various	Penang	New York	71,100	3,411,820

JANUARY 15. By the S. S. "Melville Dollar," at New York.				
L. Littlejohn & Co., Inc.....	Singapore	New York	526,400	
William H. Stiles & Co.....	Singapore	New York	48,400	
Meyer & Brown, Inc.....	Singapore	New York	44,800	
Hood Rubber Co.....	Singapore	Watertown	124,880	
Rubber Importers & Dealers Co.....	Singapore	New York	185,431	
Chas. T. Wilson Co., Inc.....	Singapore	New York	87,304	
Edward Maurer Co., Inc.....	Singapore	New York	179,700	
Baird Rubber & Trading Co.....	Singapore	New York	257,600	
Various	Penang	New York	366,660	1,821,175

JANUARY 17. By the S. S. "Morioka Maru," at New York.				
Thornett & Fehr, Inc.....	Singapore	New York	291,220	
Mitsui & Co., Limited....	Singapore	New York	41,400	
Various	Singapore	New York	19,080	351,700

JANUARY 17. By the S. S. "Greenland," at New York.				
Thos. A. Desmond & Co.....	Singapore	New York	178,920	
F. R. Henderson & Co.....	Singapore	New York	132,660	
W. R. Grace & Co.....	Singapore	New York	108,900	
Meyer & Brown, Inc.....	Singapore	New York	22,400	
Fred Stern & Co.....	Singapore	New York	145,600	
Chas. T. Wilson Co., Inc.....	Singapore	New York	181,800	
L. Littlejohn & Co., Inc.....	Singapore	New York	135,893	
United States Rubber Co.....	Singapore	New York	190,260	
J. Aron & Co.....	Singapore	New York	50,400	
Various	Singapore	New York	1,043,500	
Various	Penang	New York	76,580	
Fred Stern & Co.....	Batavia	New York	4,480	
Various	Batavia	New York	38,420	2,309,813

JANUARY 17. By the S. S. "Kumeric," at Boston.				
Hood Rubber Co.....	Colombo	Watertown	33,600	33,600

JANUARY 18. By the S. S. "Tornura Maru," at New York.				
Baring Brothers	Colombo	New York	113,400	
Meyer & Brown, Inc.....	Colombo	New York	112,000	225,400

JANUARY 19. By the S. S. "Kumeric," at New York.				
Meyer & Brown, Inc.....	Colombo	New York	112,000	112,000

GUTTA PERCHA

JANUARY 3. By the S. S. "Ryndam," at New York.				
Austin Baldwin & Co.....	Rotterdam	New York	300	300

CENTRALS

JANUARY 15. By the S. S. "Panama," at New York.				
Neuss, Hessel & Co.....	Cristobal	New York	1,050	
Ultramarines Corp.....	Cristobal	New York	2,400	
Various	Cristobal	New York	3,150	6,600

AFRICANS

JANUARY 3. By the S. S. "La Perouse," at New York.				
Various	Havre	New York	259,675	259,675

JANUARY 17. By the S. S. "Schoodie," at New York.				
Various	W. African	New York	60,950	60,950

JELUTONG

	Shipment from:	Shipped to:	Pounds.	Totals.
JANUARY 20.	By the S. S. "Rotterdam,"	at New York.		
Various	Rotterdam	New York	54,395	54,395
JANUARY 12.	By the S. S. "Tydeus,"	at New York.		
Various	Singapore	New York	76,800	76,800
JANUARY 14.	By the S. S. "Eastern Crown,"	at New York.		
Various	Singapore	New York	121,800	121,800
JANUARY 17.	By the S. S. "Greenland,"	at New York.		
Various	Singapore	New York	41,100	41,100

BALATA

DECEMBER 23.	By the S. S. "Mayaro,"	at New York.		
Venezuela Trading Co.	Trinidad	New York	13,440	13,440
DECEMBER 27.	By the S. S. "Colon,"	at New York.		
G. Amsinck & Co., Inc.	Cristobal	New York	2,880	2,880
JANUARY 3.	By the S. S. "Aurora,"	at New York.		
Wm. Schall & Co.	West Indies	New York	2,760	2,760
JANUARY 6.	By the S. S. "Turrialba,"	at New York.		
G. Amsinck & Co., Inc.	Cristobal	New York	750	750
JANUARY 17.	By the S. S. "Maraval,"	at New York.		
Various	Port of Spain	New York	102,300	102,300
JANUARY 17.	By the S. S. "Quilpué,"	at New York.		
G. Amsinck & Co., Inc.	Guayaquil	New York	3,750	3,750

CUSTOM HOUSE STATISTICS

PORT OF NEW YORK

IMPORTS

	November 1919		November 1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—free:				
Crude rubber:				
From Belgium	46,538	\$19,508		
France	276,772	122,814		
Netherlands	732,886	342,065	421,744	\$107,974
England	12,806,275	6,479,218	95,034	28,491
Scotland	91,940	29,975		
Honduras	819	169	728	250
Costa Rica	575	85		
Panama	400	87		25
Nicaragua	8,857	2,977		
Mexico	17,947	6,644		
Siam			3,068,460	19,542
Portugal			29,303	4,184
Brazil	9,568,921	5,044,232	2,822,447	877,013
Colombia	31,422	10,288	4,892	2,828
Ecuador	25,257	8,028	4,335	869
Peru	475,684	160,475	124,065	33,126
Uruguay	137,034	99,456	18,386	17,624
Venezuela	33,242	13,770	40,607	11,368
British India	100,000	29,788	56,000	14,487
British Guiana	2,233	1,988		
Straits Settlements	10,717,020	4,284,441	19,977,531	7,577,201
British East Indies	1,976,186	933,110	4,408,974	1,223,399
Dutch East Indies	5,475,388	2,294,524	1,594,424	1,683,499
Totals	42,525,396	\$19,883,830	32,666,987	\$11,601,880
Jelutong (Pontianak):	522,591	\$50,072	278,627	\$34,063
From Straits Settlements	819,095	59,348	74,405	6,722
Dutch East Indies				
Totals	1,341,686	\$109,420	353,032	\$40,785
Gutta percha:				
From England:				
Straits Settlements	110,554	\$25,219	438,051	\$117,186
Dutch East Indies	81,896	23,662	89,764	11,266
Philippine Islands			408	500
Totals	192,450	\$48,881	528,222	\$128,952
Balata:				
From Colombia	8,352	\$3,585	13,099	\$5,061
Panama			3,859	1,409
Venezuela	21,797	12,086	42,895	26,844
Dutch Guiana	67,815	65,904	59,092	37,295
Totals	97,964	\$81,575	118,945	\$70,609
Reclaimed and scrap rubber.	858,287	\$90,443	332,485	\$21,819
Totals, unmanufactured.	45,015,783	\$20,214,149	33,999,671	\$11,864,045
Manufactures of rubber and gutta percha		\$59,801		\$47,557
Chicle	213,388	149,976	38,149	16,946
Totals	213,388	\$209,777	38,149	\$64,503
EXPORTS				
MANUFACTURED:				
Automobile tires		\$1,828,484		\$2,844,703
Inner tubes				429,161
Solid tires				195,404
All other tires		94,945		68,880
Beltting		250,518		227,622
Hose				263,587
Packing				102,431
Rubber boots	3,255	9,400	11,001	35,993
Rubber shoes	780,326	601,870	840,620	890,512
Soles and heels				98,860
Druggists' sundries		59,724		138,065
Other rubber manufactures		352,617		603,424
Totals manufactured		\$3,197,558		\$5,898,642
Insulated wire		429,961		932,397
Fountain pens	15,893	15,774	30,057	41,128
Suspenders and garters		101,183		266,401
Chewing gum		212,153		155,298
Totals		\$759,071		\$1,395,224

November

	1919		1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—free:				
Reclaimed and scrap rubber.	519,097	\$69,556	540,922	\$49,880
FOREIGN EXPORTS				
Crude rubber	28,664	\$12,293	304,091	\$92,021
Balata	31,040	16,052	61,532	24,665
Rubber manufactures				1,885
Chicle	2,205	349	1,000	175

PORT OF BOSTON

IMPORTS

	November 1919		November 1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—free:				
Crude rubber:				
From Straits Settlements			4,600	\$1,445
British East Indies			100,800	20,876
Totals			105,400	\$22,321
Rubber manufactures—dutiable		\$6,786		\$6,736

EXPORTS

MANUFACTURED:				
Automobile tires		\$77,585		\$1,766
Inner tubes				187
Other tires		90,612		3,141
Beltting		30,469		780
Hose				99
Packing				18,393
Rubber boots	10,311	27,694	5,516	29,163
Rubber shoes	231,875	152,647	44,444	4,762
Soles and heels		2,808		6,637
Druggists' sundries		90,612		16,301
Other rubber manufactures				
Totals		\$472,427		\$81,229
Insulated wire		\$48,017		\$22,938
Suspenders and garters		22,826		8,888
Rubber scrap and reclaimed	23,762	1,226		
Other rubber manufactures		156		

OFFICIAL INDIA RUBBER STATISTICS FOR THE UNITED STATES

IMPORTS OF CRUDE AND MANUFACTURED RUBBER

	November 1919		November 1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—free:				
India rubber:				
From France	276,772	\$122,814		
Netherlands	732,886	342,065	421,744	\$107,974
Portugal			29,303	4,184
United Kingdom	12,898,215	6,509,193	95,034	28,491
Canada	9,176	3,356	3,094	1,468
Central America	10,821	3,591		275
Mexico	17,947	6,644		11,000
Brazil	9,568,921	5,044,232	2,822,447	877,013
Peru	475,684	160,475	124,065	33,126
Other South Am.	229,188	133,530	68,220	32,689
British E. Indies	24,368,135	9,940,555	24,547,905	8,837,408
Dutch E. Indies	6,980,890	2,864,984	4,718,969	1,734,951
Other countries	235,853	110,287	68,450	19,549
Totals	55,804,488	\$25,241,726	32,955,016	\$11,688,128
Balata	97,964	\$81,575	118,945	\$70,609
Guayule			125,000	25,000
Jelutong (Pontianak)	1,341,686	109,420	353,032	40,785
Gutta percha	192,450	48,881	528,222	128,952
Rubber scrap	1,312,638	123,775	369,355	23,844
Totals, unmanufactured	58,749,226	\$25,605,377	34,449,570	\$11,977,318
Chicle (dutiable)	617,749	\$426,563	447,207	\$292,704
MANUFACTURED—dutiable:				
India rubber and gutta percha		\$71,272		\$65,366
EXPORTS OF DOMESTIC MERCHANDISE				
MANUFACTURED—				
India rubber:				
Scrap and old	941,616	\$92,451	791,364	\$50,723
Reclaimed	533,902	89,397	205,165	36,270
Beltting				441,028
Hose		518,715		347,134
Packing				146,626
Boots	21,591	63,205	21,345	70,683
Shoes	1,028,373	774,843	918,900	965,492
Soles and heels				116,057
Tires:				
For automobiles		2,438,958		
Casings				3,443,128
Inner tubes				511,219
Solid tires				286,266
All other tires		104,692		78,520
Druggists' rubber sundries		108,169		174,304
Suspenders and garters		158,269		317,952
Other rubber manufactures		773,052		841,302
Totals, manufactured		\$5,121,751		\$7,826,704
Four-tain pens	28,829	\$34,890	33,870	\$44,253
Insulated wire and cables		535,746		1,033,898

EXPORTS OF FOREIGN MERCHANDISE

November

	1919		1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—				
India rubber.....	245,255	\$96,376	560,198	\$139,608
Balata.....	42,844	22,740	61,532	24,665
Jelutong (Pontianak)....	63,414	10,914	.....	.....
Totals unmanufactured	351,513	\$130,030	621,730	\$164,273
MANUFACTURED—				
Gutta percha.....	.....	\$325	.....	\$1,885
Totals, manufactured	.....	\$325	.....	\$1,885

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES

MANUFACTURED—				
To Alaska:				
Belting, hose and pack-				
ing.....		\$2,599		\$9,137
Boots and shoes, pairs	6,059	15,305	2,802	6,765
Other rubber goods...	.....	3,056	.....	2,710
Totals.....		\$20,960		\$18,612
To Hawaii:				
Belting, hose and pack-				
ing.....		\$20,167		\$27,613
Automobile tires.....		138,314		107,866
Other tires.....		5,423		1,390
Other rubber.....		15,895		21,593
Totals.....		\$179,799		\$158,462
To Porto Rico:				
Belting, hose and pack-				
ing.....		\$5,408		\$13,385
Automobile tires.....		47,752		166,757
Other tires.....		2,413		1,988
Other rubber goods...		17,044		74,015
Totals.....		\$72,617		\$256,145
To Philippine Islands—treated as foreign commerce.				

¹Details of exports of domestic merchandise by countries during November, 1920, will be published in our next issue.

OFFICIAL INDIA RUBBER STATISTICS FOR THE UNITED STATES

IMPORTS OF CRUDE AND MANUFACTURED RUBBER

October

	1919		1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—free:				
India rubber:				
From France.....	903,765	\$277,812	.....	.....
Netherlands.....	424,224	202,338	51,546	\$24,993
United Kingdom.....	8,813,978	4,345,532	143,263	43,655
Canada.....	66,374	27,179	2,393	1,228
Central America.....	23,065	7,654	8,252	2,347
Mexico.....	8,216	2,417	10,712	1,835
Brazil.....	2,941,514	1,302,557	2,369,369	576,346
Peru.....	68,988	19,576	50,629	13,705
Other South Am.....	247,132	91,643	44,841	15,738
British East Indies.....	23,773,158	9,702,603	14,143,006	5,333,778
Dutch East Indies.....	5,819,796	2,470,701	3,623,229	1,487,785
Other countries.....	636,165	279,639	68,850	17,470
Totals.....	43,726,375	\$18,729,651	20,516,090	\$7,518,880
Balata.....	148,528	\$84,588	112,017	\$72,916
Guayule.....	179,639	31,213	270,000	54,000
Jelutong (Pontianak)....	2,530,053	381,577	317,222	37,433
Gutta percha.....	769,115	127,322	524,064	119,001
Rubber scrap.....	1,235,953	82,903	397,321	18,304
Totals, unmanufactured	48,589,663	\$19,437,254	22,136,714	\$7,820,534
Chicle (dutiable).....	960,482	\$652,987	665,368	\$453,963
India rubber and gutta				
percha.....	.....	54,951	.....	87,883
India rubber substitutes..	.....	.....	15,620	3,385

EXPORTS OF DOMESTIC MERCHANDISE

MANUFACTURED—				
India rubber:				
Scrap and old.....	854,635	\$73,052	826,556	\$63,789
Reclaimed.....	607,472	105,831	234,872	47,168
Belting ¹.....	.....	.....	.....	283,958
Hose ¹.....	.....	400,553	.....	399,624
Packing ¹.....	.....	.....	.....	182,976
Boots ¹	29,045	67,203	24,962	82,970
Shoes ¹	587,953	490,094	666,948	699,174
Soles and heels ¹.....	.....	.....	.....	86,780
Tires:				
For automobiles ¹.....	.....	.....	.....	3,789,819
Casings ¹.....	.....	2,488,299	.....	459,490
Inner tubes ¹.....	.....	.....	.....	167,332
Solid tires ¹.....	.....	.....	.....	72,033
All other tires ¹.....	.....	147,373	.....	156,184
Druggists' rubber sundries ¹	.....	117,373	.....	316,072
Suspenders and garters ¹	.....	202,814	.....	693,110
Other rubber manufactures ¹	.....	769,396	.....	.....
Totals, manufactured.	.....	\$4,861,988	.....	\$7,500,479
Fountain pens.....	34,806	\$41,885	56,276	\$63,191
Insulated wire and cables.	.....	487,444	.....	575,041

EXPORTS OF FOREIGN MERCHANDISE

October

	1919		1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—				
India rubber.....	637,640	\$266,475	1,851,266	\$524,603
Gutta percha.....	2,450	1,432	.....	.....
Balata.....	5,300	3,366	41,320	17,219
Jelutong (Pontianak)....	.....	.....	30,000	3,360
Rubber scrap.....	548	14	4,800	930
Totals, unmanufactured	645,938	\$271,287	1,927,386	\$546,112
MANUFACTURED—				
Gutta percha and India				
rubber.....	.....	\$19,842	.....	\$3,228
India rubber substitutes..	.....	.....	44,250	14,632
Totals, manufactured.	.....	\$19,842	.....	\$17,860

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES

MANUFACTURED—				
To Alaska:				
Belting, hose and packing	.....	\$5,344	.....	\$7,730
Boots and shoes, pairs	5,297	11,788	12,082	24,142
Other rubber goods....	.....	5,714	.....	4,825
Totals.....		\$22,846		\$36,697
To Hawaii:				
Belting, hose and packing	.....	\$5,324	.....	\$34,145
Automobile tires.....	.....	29,235	.....	147,748
Other tires.....	.....	.....	.....	5,764
Other rubber.....	.....	5,502	.....	26,442
Totals.....		\$40,061		\$214,099
To Porto Rico:				
Belting, hose and packing	.....	\$7,481	.....	\$7,747
Automobile tires.....	.....	77,236	.....	139,299
Other tires.....	.....	13,130	.....	635
Other rubber goods...	.....	23,562	.....	85,050
Totals.....		\$121,409		\$232,731
To Philippine Islands—treated as foreign commerce.				

¹Details of exports of domestic merchandise by countries during October, 1920, were given on pages 304-305 of our January issue.

RUBBER STATISTICS FOR THE DOMINION OF CANADA

IMPORTS OF CRUDE AND MANUFACTURED RUBBER

October

	1919		1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—free:				
Rubber, gutta percha, etc.:				
From United Kingdom....	216,478	\$98,600	44,064	\$15,518
United States.....	536,077	238,737	614,012	160,898
British East Indies:				
Straits Settlements.....	986,643	494,315	946,660	466,262
Dutch East Indies.....	114	57	.....	.....
Totals.....	1,739,312	\$831,709	1,604,736	\$642,678
Rubber recovered.....	333,677	\$51,989	229,782	\$43,166
Rubber, powdered, and rubber				
or gutta percha scrap.....	300,819	28,897	347,004	21,916
Rubber substitutes.....	209,402	23,728	107,433	12,281
Totals, unmanufactured..	2,583,210	\$936,323	2,288,955	\$720,041
PARTLY MANUFACTURED—				
Hard rubber sheets and rods.	2,379	1,980	3,911	2,749
Hard rubber tubes.....	.....	3,598	.....	7,732
Rubber thread, not covered..	7,379	10,644	5,280	5,242
Totals, partly manufac-				
tured.....	9,758	\$16,222	9,191	\$15,723
MANUFACTURED—				
Belting.....	.....	\$20,174	.....	\$16,600
Hose.....	.....	8,268	.....	15,184
Packing.....	.....	5,966	.....	7,279
Boots and shoes.....	.....	29,499	.....	30,105
Clothing, including water-				
proofed.....	.....	13,700	.....	8,653
Gloves.....	.....	962	.....	1,560
Hot water bottles.....	.....	3,266	.....	2,838
Tires, solid.....	.....	13,904	.....	10,349
Tires, pneumatic.....	.....	67,601	.....	240,362
Tires, inner tubes.....	.....	3,231	.....	28,052
Other manufactures.....	.....	193,318	.....	226,288
Totals, manufactured....	.....	\$359,889	.....	\$587,270
Totals, rubber imports...	2,592,968	\$1,312,434	2,298,146	\$1,323,034
Insulated wire and cables:				
Wire and cables covered				
with cotton, linen, silk,				
rubber, etc.....	.....	\$14,331	.....	\$14,936
Copper wire and cables,				
covered as above.....	.....	11,306	.....	43,944
Chicle.....	245,425	180,935	47,575	23,363

EXPORTS OF DOMESTIC AND FOREIGN RUBBER GOODS

	October			
	1919		1920	
	Produce of Canada Value	Reexports of Foreign Goods Value	Produce of Canada Value	Reexports of Foreign Goods Value
UNMANUFACTURED—				
Crude and waste rubber....	\$46,352	\$15,601	\$3,856	
MANUFACTURED—				
Belting	3,204		8,330	
Hose	29,730		20,458	
Boots and shoes.....	167,820		93,830	
Clothing, including water-proofed	5,150	440	1,952	\$832
Tires	12,667	5,607	2,689	135
Tires, pneumatic.....	507,847		862,067	
Other manufactures.....	27,677	23,329	84,111	3,483
Totals, manufactured....	\$754,095	\$29,367	\$1,073,437	\$4,450
Totals, rubber exports...	\$800,447	\$44,968	\$1,077,293	\$4,450
Insulated wire and cable.....			\$46,756	
Copper wire and cable.....			75,726	
Chicle	\$108,890			

UNITED KINGDOM RUBBER STATISTICS

	November			
	1919		1920	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—				
Crude rubber:				
From—				
Straits Settlements	4,270,100	£514,335	6,730,300	£454,284
Federated Malay States....	3,353,900	355,463	7,098,600	471,713
British India	327,700	38,049	758,700	48,839
Ceylon and dependencies....	2,923,600	314,032	4,574,500	286,140
Other Dutch possessions in Indian Sea	484,600	48,444	1,025,600	65,534
Dutch East Indies (except other Dutch possessions in Indian Sea)	1,784,700	183,465	2,569,600	171,603
Other countries in the East Indies and Pacific not elsewhere specified	52,300	6,192	327,300	22,869
Brazil	724,000	82,517	1,169,300	77,498
Peru	180,900	19,240	19,600	1,223
South and Central America (except Brazil and Peru)	1,100	105	1,900	100
West Africa:				
French West Africa.....	20,000	2,200		
Gold Coast	52,800	6,036	8,800	151
Other parts of West Africa	54,200	4,485	23,600	1,464
East Africa (including Madagascar)	6,100	740	118,800	6,517
Other countries	160,800	18,246	83,400	6,561
Totals	14,396,800	£1,593,549	24,509,400	£1,614,496
Waste and reclaimed rubber..	627,400	19,189	432,700	7,625
Totals, unmanufactured....	15,024,200	£1,612,738	24,942,100	£1,622,121
Gutta percha and balata.....	1,197,000	£194,484	665,000	£132,871
*Rubber substitutes			1,700	115
MANUFACTURED—				
Boots and shoes...dozen pairs	19,074	£40,001	11,314	£31,069
Waterproof clothing		3,955		424
Insulated wire		2,598		3,731
Tires and tubes.....		221,791		422,281
Other rubber manufactures...		45,808		71,320
EXPORTS				
UNMANUFACTURED—				
Waste and reclaimed rubber..	959,300	£26,535	1,783,800	£49,779
*Rubber substitutes			108,000	3,809
Totals		£26,535		£53,588

	November			
	1919		1920	
	Pounds	Value	Pounds	Value
MANUFACTURED—				
Boots and shoes...dozen pairs	11,194	£27,498	21,722	£41,672
Waterproof clothing		286,195		208,750
Insulated wire		95,201		200,220
Submarine cables		50,399		81,609
Tires and tubes.....		416,684		481,936
Other rubber manufactures...		298,334		403,989

EXPORTS—COLONIAL AND FOREIGN

UNMANUFACTURED—				
Crude rubber:				
To Russia	5,600	£420	37,700	£4,215
Sweden, Norway and Denmark	425,000	45,427	293,400	25,120
Germany	521,800	51,191	1,927,300	110,432
Belgium	584,900	61,856	213,600	14,897
France	1,755,900	183,108	649,200	45,215
Spain	69,000	7,932	77,000	6,101
Italy	191,900	16,063	101,800	8,213
Austria-Hungary	44,900	4,911	9,600	665
Other European countries	344,600	33,329	407,200	27,893
United States	10,127,500	1,088,897	66,500	7,255
Canada	1,135,600	131,021	350,500	33,196
Other countries	89,000	10,895	112,300	12,865

Totals, rubber	15,295,700	£1,635,050	4,245,500	£296,067
Waste and reclaimed rubber..	220,800	£7,856	17,100	£925
Gutta percha and balata....	184,700	33,610	25,800	6,715

MANUFACTURED—				
Boots and shoes...dozen pairs	254	£533	1,582	£7,722
Waterproof clothing		305		
Tires and tubes.....		6,016		63,011
Insulated wire				29
Other manufactures		6,551		4,378
Totals, manufactured		£13,405		£75,140

*Included in "Other Articles," Class III T., prior to 1920.

THE MARKET FOR COTTON AND OTHER FABRICS

NEW YORK

UNWILLINGNESS to sell on the part of holders of American cotton was noticeable early in the month and possibly may explain the upward tendency of prevailing prices. Middling uplands spot sold for 16 cents on January 3, compared with 39.25 cents a year ago. Prices continued to advance and reached 18.25 cents the high level for the month. With minor fluctuations the market sagged off and on January 22, middling uplands was quoted 16.15 cents for spot.

ARIZONA COTTON. The prices of Arizona cotton are higher than Sakellarides, but there is practically no demand at present for this staple. It is understood that the acreage of Arizona cotton for the coming season will be reduced at least 50 per cent and much shorter cotton planted. No. 2 Pima is quoted 30 to 35 cents although inferior lots have been offered at 30 cents. The quantity price of Salt River Valley cotton is around 40 cents.

EGYPTIAN COTTON. This market has been somewhat easier but has not reacted to the point reached late in December. Features that operate to support values are the strength of sterling exchange and the attempt to hold one-third of the Egyptian crop through a syndicate. Quotations on Sakellarides were 30 to 35 cents according to grade, and 20 to 25 cents for Uppers. Cables from Alexandria indicate that prices will not go much lower.

EXPORTS OF INDIA RUBBER AND CAUCHO FROM MANAOS AND IQUITOS DURING NOVEMBER, 1920

Exporters	EUROPE					NEW YORK					Grand Totals
	Fine	Medium	Coarse	Caucho	Totals	Fine	Medium	Coarse	Caucho	Total	
Stowell & Co.....kilos	224,566	10,974	9,721	179,628	424,889	26,363	323	7,998		34,684	459,573
General Rubber Co. of Brazil.....	50,368	3,024	8,597	11	62,000	146,641	20,077	39,171	40,561	246,450	308,450
Tancredi, Porto & Co.....	16,219	6,360			22,579	27,190	685	10,148	11,655	49,678	72,257
Ohlinger & Co.....	17,577	701	1,834	5,851	25,963						25,963
Companhia Fluvial	13,304		856	3,416	17,576						17,576
Semper & Co.....	10,560	960	1,230	570	13,320						13,320
Higson & Fall.....	5,950		2,030		7,980						7,980
J. G. Araujo.....			828	654	1,482						1,482
Totals from Manaos.....kilos	338,544	22,019	25,096	190,130	575,789	200,194	21,085	57,317	52,216	330,812	906,601
In transit from Iquitos.....	5,182	1,914	3,176	1,887	12,159	33,048	21,834	5,328	2,046	62,256	74,415
Totals	343,726	23,933	28,272	192,017	587,948	233,242	42,919	62,645	54,262	393,068	981,016

Compiled by Stowell & Co., Manaos, Brazil.

SEA ISLAND COTTON. This is practically a dead market although there is some stock carried over and available at 45 cents for extra choice.

RAINCOAT FABRICS. Business has been very good on 64-60 olive drab, but this is about the only cloth that has been moving at all. Raincoat concerns prefer liquidating their stocks before making new commitments on cotton fabrics, although it is the general opinion that prices are low, and advances will be seen very shortly.

DUCKS AND DRILLS. This market has been more active and prospects for improvement in the near future are good. Prices have not materially changed from last month's quotations.

SHEETINGS. The general buying of 40-inch sheetings has improved during the past two weeks. Mills making 40-inch, 2.85-yard sheeting are comfortably fixed with orders for delivery up to May, which is as far as they care to sell. Other light-weight sheetings have also been selling freely. Buying by the rubber trade is still dead.

TIRE FABRICS. Mill quotations are still unavailable as the situation is the same as it has been over the past few months, in which only distressed fabric is being offered. There is, however, a better feeling among tire manufacturers and shipping instructions have been given in some instances on old contracts, but up to the present there have been practically no bona fide inquiries. It is estimated that the stocks of the tire manufacturers will become unbalanced and necessitate purchasing in the near-by months. There is absolutely no interest in tire fabrics at the present time.

TIRE YARNS. The situation among the yarn manufacturers supplying the weaving and knitting trades has improved as well as the demand for print cloths and other staples, so that the mills are now operating in a small way with about an even break, their product having been sold at a loss. The general textile situation looks better.

NEW YORK QUOTATIONS

JANUARY 24, 1921

Prices subject to change without notice

ASBESTOS CLOTH:

Brake lining, 2½ lbs. sq. yd., brass or copper insertion	lb.	@
2½ lbs. sq. yd., brass or copper insertion	lb.	@

BURLAPS:

32-7-ounce	100 yards	\$4.50	@
32-8-ounce		4.65	@
40-7½-ounce		5.00	@
40-8-ounce		5.15	@
40-10-ounce		5.50	@
40-10½-ounce		5.75	@
45-7½-ounce		5.50	@
45-8-ounce		5.75	@
48-10-ounce		9.00	@

DRILLS:

38-inch 2.00-yard	yard	.22½ @	.23¼
40-inch 2.47-yard .....		.18¼ @	.19
52-inch 1.90-yard .....		.23 @	.24¼
52-inch 1.95-yard .....		.23¼ @	.24¼
60-inch 1.52-yard .....		.29¼ @	.30¼

DUCK:

CARRIAGE CLOTH:

38-inch 2.00 yard enameling duck	yard	.23¼ @
48-inch 1.74-yard .....		.27 @
72-inch 16.66-ounce .....		.63¼ @
72-inch 17.21-ounce .....		.66¼ @

MECHANICAL:

Hose	pound	.43 @
Beltting .....		.43 @

HOLLANDS, 40-INCH:

Acme	yard	.24 @
Endurance .....		.28 @
Penn .....		.34 @

OSNABURGS:

40-inch 2.35-yard	yard	@
40-inch 2.48-yard		@
37½-inch 2.42-yard		@

RAINCOAT FABRICS:

COTTON:

Bombazine 64 x 60	yard	.12¼ @
60 x 48 .....		.11¼ @
Cashmeres, cotton and wool, 36-inch, tan .....		.80 @
Twills 64 x 72 .....		.20 @
64 x 102 .....		.22 @
Twill, mercerized, 36-inch, blue and black .....		.29½ @
tan and olive .....		.27 @
Tweed .....		.40 @ 1.00
printed .....		.22½ @
Plaids 60 x 48 .....		.12¼ @
56 x 44 .....		.12 @
Repp .....		.30 @ .35
Prints 60 x 48 .....		.13 @
64 x 60 .....		.14 @

IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING—PLAIN AND FANCIES:

63-inch, 3¼ to 7¼ ounces	yard	.81 @ 2.22
36-inch, 2¼ to 5 ounces .....		.63 @ 1.62

IMPORTED PLAID LINING (UNION AND COTTON):

63-inch, 2 to 4 ounces	yard	.71 @ 1.57
36-inch, 2 to 4 ounces .....		.44 @ .84

SHEETINGS, 40-INCH:

48 x 48, 2.35-yard	yard	@
48 x 48, 2.50-yard .....		.13 @
48 x 48, 2.85-yard .....		.11½ @
64 x 68, 3.15-yard .....		.13 @
56 x 60, 3.60-yard .....		.10¼ @
48 x 44, 3.75-yard .....		.09¼ @

TIRE FABRICS

JENCKES SPINNING COMPANY

PAWTUCKET RHODE ISLAND

AKRON OFFICE
Second National Building

NEW YORK OFFICE
25 West 43d Street

SILKS:

Canton, 38-inch	yard	.30	@
Schappe, 36-inch .....		.50	@

STOCKINETTES:

SINGLE THREAD:

3¼ Peeler, carded.....	pound		@
4½ Peeler, carded.....		.55	@
6½ Peeler, combed.....		.85	@

DOUBLE THREAD:

Zero Peeler, carded.....	pound	.45	@
3¼ Peeler, carded.....		.52½	@
6½ Peeler, combed.....			@

TIRE FABRICS:

BUILDING:

17¼-ounce Sakellarides, combed	pound	*2.35	@
17¼-ounce Egyptian, combed		*2.15	@
17¼-ounce Egyptian, carded		*2.05	@
17¼-ounce Peeler, combed.....		*2.25	@
17¼-ounce Peeler, carded		*1.47	@

CORD:

15-ounce Egyptian	pound	*2.40	@
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BICYCLE:

8-ounce American	pound	*1.50	@
10-ounce American		*1.48	@

CHAFFER:

9¼-ounce Sea Island	pound		@
9¼-ounce Egyptian, carded		*2.29	@
9¼-ounce Peeler, carded		*1.71	@

*Mill prices of August 1, 1920.

THE EGYPTIAN COTTON CROP FOR 1919-20

Approximately 652,240,017 pounds of Egyptian cotton are available this season, according to a report from Consul Lester Maynard at Alexandria, and which total is made up from a carry-over of 39,421,998 pounds on September 1, 1920, and the estimated new crop of 612,818,019 pounds. In view of the fact that the 1920 yield was 74,346,228 pounds greater than the previous season and the heavy falling off in the demand from the United Kingdom, the principal buyer; due to disturbed economic conditions a further fall in price in addition to the drop of 25 per cent from the figures ruling last winter, is forecasted. Growers fear competition with California and Arizona planters who have had a large crop of high quality, and restriction of credit is also forcing many who were holding back their crops for higher prices to sacrifice them.

According to the Ministry of Agriculture, 1,897,418 acres are planted to cotton in Egypt, thus breaking all records, but of the total acreage only 69.5 per cent has been planted to Sakellarides cotton, as compared with 73 per cent for the two preceding seasons. The estimated yield for the whole of Egypt per acre is 336 pounds.

Salient features of the 1919-1920 season were the remarkable size of the crop, the extraordinary prices paid, and the unprecedented shipments to the United States, where, it is believed, there is still a considerable amount of Egyptian cotton on hand, despite large resales to Liverpool. The American purchases were 256,555 bales, compared with 95,262 for the preceding season. Incidentally Boston assumed first place in the world as a foreign importing port of Egyptian cotton, its imports of the latter almost equalling those of Liverpool and Manchester combined.

THE MARKET FOR CHEMICALS AND COMPOUND-
INGREDIENTS
NEW YORK

THIS market has been featured by general dullness with slightly downward tendency in prices noted in lead pigments and lithopone. The trade in general has not experienced much renewed activity since the holiday and inventory season. On all sides there is an apparently well founded feeling of optimism that trade and industry will share a goodly season of prosperity with the coming of Spring.

ANILINE OIL. The market was well stocked at the first of the year and in response to a strong demand prices advanced two cents per pound early in the month, holding firm at 23 to 26 cents, and later rising to 26 to 30 cents.

BARYTES. The demand has remained moderate the whole month with prices unchanged. Several barytes companies in St. Louis have consolidated into a new absolutely independent organization.

BENZOL. The market has been mostly dull with slight tendency to improve. The grades were quoted as follows, 90 per cent at 28 cents and pure at 30 cents per pound.

BLACKS. Demand very moderate and prices nominal for several weeks past.

BLANC FIXE. Very quiet, only routine demand.

BLUE LEAD. Early in the month quotations were 8¼ to 8½ cents, falling promptly in common with the other lead pigments by one cent per pound to 7¼ cent level.

CARBON BISULPHIDE. The demand has been limited and quotations stood at 8 to 9 cents per pound.

CARBON TETRACHLORIDE. The market was very quiet most of the month, the prices rising the last week from 11 to 12 cents to 12 to 12½ cents under firmer demand.

CHINA CLAY. Light importations and very moderate demand for stock.

DRY COLORS. The market has been subject to some price cutting to stimulate purchases but higher values are anticipated in the near future.

HEXAMETHYLENE TETRAMINE. Quotations early in the month were \$1.40 to \$1.60 per pound, declining later to \$1.15 to \$1.20.

LITHARGE. The early price was 9¼ to 10 cents with light demand prevailing. The price suffered a decline of one cent per pound, in common with sublimed lead and blue lead. The rubber industry has been taking very little litharge since the first of the year.

LITHOPONE. Stocks are accumulating with the producers and although the current quotations held for the first half of the month at 7¼ to 8 cents, toward the latter part they were cut to 7 to 7¼ cents, due to action of the producers to curtail their costs of production, partly by reduction of wages to a more reasonable level.

SOLVENT NAPHTHA. The demand has been very inactive.

SUBLIMED LEAD. This material has been affected by the same influences and subject to a common price reduction of one cent a pound as the other lead pigments, the latest quotations being 7¼ to 7½ cents a pound.

SULPHUR. The market has held throughout the month quite inactive. Commercial flour was quoted at \$1.60 per hundred-weight.

WHITING. The demand has continued routine only.

ZINC OXIDE. The factories are producing at full capacity in anticipation of an early spring demand on the part of the manufacturers with the revival of automobile production for the coming season.

NEW YORK QUOTATIONS

January 24, 1921

Prices subject to change without notice

ACCELERATORS, ORGANIC

Accelerene (f. o. b. English port).....	lb.	13s. 6d.
Accelamal	lb.	@
Aldehyde ammonia crystals.....	lb.	\$1.15 @ \$1.20
Aniline oil	lb.	.24 @
Excellerex	lb.	@
Hexamethylene tetramine (powdered).....	lb.	1.15 @ 1.20
N. C. C.	lb.	@
No. 999	lb.	.17½ @

Paraphenylenediamine	lb.	@	
Thiocarbamide	lb.	\$0.60 @ \$0.65	
Velosan	lb.	@	
Vul-Ko-Cene	lb.	@	
Virol	lb.	.60 @	

ACCELERATORS, INORGANIC

Lead, dry red (bbls.)	lb.	.10 1/4 @	
sublimed blue (bbls.)	lb.	.08 1/4 @	
sublimed white (bbls.)	lb.	.08 1/4 @	
white, basic carbonate (bbls.)	lb.	.08 @	
Lime, flour	lb.	.02 @	.02 1/2
Superfine, "Cream of Lime"	lb.	.03 @	
Litharge, domestic	lb.	.10 @	
imported	lb.	@	
sublimed	lb.	@	
Magnesium, carbonate, light	lb.	.10 @	.12
calcined extra light	lb.	.55 @	
calcined light	lb.	.25 @	.30
calcined medium light	lb.	.20 @	
calcined heavy	lb.	.07 @	.08
calcined commercial (magnesite)	lb.	.05 @	
oxide, extra light	lb.	.60 @	
light technical	lb.	.35 @	
light, imported	lb.	.55 @	
imported	lb.	.55 @	
light, commercial	lb.	.22 @	

ACIDS

Acetic, 28 per cent.	lb.	.10 1/2 @	
glacial, 99 per cent.	lb.	.22 1/4 @	
Aqua fortis	cwt.	6.40 @	
Cresylic (97% straw color) (bbl.)	gal.	.95 @	1.02
(95% dark) (bbl.)	gal.	.90 @	.97
Muriatic, 20 degrees	lb.	.05 @	
Nitric, 36 degrees	cwt.	6.28 @	
Sulphuric, 66 degrees	lb.	.02 1/2 @	

ALKALIES

Caustic soda, 76 per cent (bbls.)	lb.	.06 1/2 @	
Soda ash (bbls.)	lb.	.04 @	

COLORS

Black:			
Bone, powdered	lb.	.06 @	
granulated	lb.	.11 @	
Carbon black (sacks, factory)	lb.	.12 @	.20
pressed	lb.	.16 @	.17
Dipped goods	lb.	1.00 @	
Drop	lb.	.07 1/2 @	.18
Ivory black	lb.	.18 @	.45
Lampblack	lb.	.16 @	.45
Oil soluble aniline	lb.	.95 @	
Rubber black	lb.	.08 @	
Rubber makers' black	lb.	.40 @	

Blue:

Cobalt	lb.	.25 @	.30
Dipped goods	lb.	1.00 @	
Prussian	lb.	.60 @	
Ultramarine	lb.	.18 @	.35
Rubber makers' blue	lb.	3.50 @	

Brown:

Iron oxide	lb.	@	
Sienna, Italian, raw and burnt	lb.	.06 @	.15
Umber, Turkey, raw and burnt	lb.	.05 @	.06 1/2
Vandyke	lb.	.06 @	.10
Maroon oxide	lb.	.13 1/4 @	

Green:

Chrome, light	lb.	.40 @	.45
medium	lb.	.45 @	.58
dark	lb.	.50 @	.65 1/2
commercial	lb.	.10 @	.15
tile	lb.	.10 @	.20
Dipped goods	lb.	1.00 @	
Oxide I. R.	lb.	@	
Oxide of chromium (casks)	lb.	.90 @	
Rubber makers' green	lb.	3.50 @	

Red:

Antimony, crimson, sulphuret of (casks)	lb.	.44 @	.45
crimson, "R. M. P."	lb.	.55 @	

Antimony, golden sulphuret of (casks)	lb.	\$0.26 @ \$0.40	
golden, "R. M. P."	lb.	.25 @	
7-A	lb.	.42 @	
vermillion sulphuret	lb.	.65 @	
red sulphuret	lb.	.25 @	
Arsenic, red sulphide	lb.	.13 @	
Dipped goods, red	lb.	1.25 @	
purple	lb.	1.25 @	
orange	lb.	1.25 @	
Indian	lb.	.13 1/2 @	.15
Para toner	lb.	1.90 @	
Red excelsior	lb.	@	
Toluidine toner	lb.	3.25 @	3.50
Iron oxide, reduced grades	lb.	.02 1/2 @	.11 1/2
pure bright	lb.	.14 1/2 @	.16 1/2
Spanish neutral	lb.	.05 1/2 @	.08
Venetian	lb.	.03 1/2 @	.07
Oil soluble aniline, red	lb.	1.95 @	
orange	lb.	1.60 @	
Oximony	lb.	.18 @	
Vermilion, American	lb.	@	
permanent	lb.	.34 @	
English quicksilver	lb.	1.05 @	
Rubber makers' red	lb.	3.50 @	4.00
purple	lb.	2.50 @	

White:

Albalith	lb.	@	
Aluminum bronze, extra brilliant	lb.	@	
extra fine	lb.	@	
Lithopone, Beckton white	lb.	.07 1/4 @	.08
Lithopone	lb.	.07 @	.07 1/2
Ponolith (carloads, factory)	lb.	@	
Rubber-makers' white	lb.	@	
Zinc oxide, American Horse Head brand (factory):			C. L. L. C. L.
Special	lb.	.10 @	.10 1/2
XX red	lb.	.09 1/2 @	.10
French process, Florence brand (factory):			
White seal	lb.	.13 @	.13 1/4
Green seal	lb.	.11 1/4 @	.12 1/4
Red seal	lb.	.10 1/4 @	.11 1/4
White seal, imported	lb.	.14 @	

Azo factory:

ZZZ (lead free)	lb.	.09 1/2 @	.10
ZZ (under 5% leaded)	lb.	.08 1/2 @	.09
Z (8-10% leaded)	lb.	.08 1/4 @	.08 1/2
Standard AA	lb.	.09 @	

Yellow:

Cadmium, sulphide, yellow, light, orange	lb.	@	
red	lb.	@	
Chrome, light and medium	lb.	.28 @	
Dipped goods	lb.	1.25 @	
Ochre, domestic	lb.	.02 1/4 @	.05 1/2
imported	lb.	.04 @	
Rubber makers' yellow	lb.	.60 @	2.50
Zinc chromate	lb.	.42 @	.45
Oil soluble aniline	lb.	1.70 @	

COMPOUNDING INGREDIENTS

Aluminum flake (carload)	ton	33.00 @	45.00
hydrate	lb.	@	
silicate	ton	@	
Ammonium carbonate (powdered)	lb.	.16 1/4 @	
Asbestos (carloads)	ton	17.00 @	36.00
Barium, carbonate, precipitated	ton	85.00 @	
dust	ton	110.00 @	
Barytes, pure white (f. o. b. works)	ton	28.00 @	45.00
off color	ton	20.00 @	30.00
uniform floated	ton	28.00 @	
German "Cream"	ton	@	
Basofo	lb.	.05 1/2 @	
Blanc fixe (dry, bbls.)	lb.	.05 1/2 @	.06 1/4
Bone ash	lb.	.10 @	
Carrara filler	lb.	.02 @	
Chalk, precipitated, extra light	lb.	.04 1/2 @	.05
heavy	lb.	.04 @	.05 1/2
China clay, Dixie	ton	22.00 @	
Blue Ridge	ton	22.00 @	
domestic	ton	10.00 @	20.00
imported	ton	30.00 @	
Cotton linters, clean mill run, f. o. b. factory	lb.	.02 1/2 @	
Fossil flour (powdered)	ton	60.00 @	
(bolted)	ton	65.00 @	
Diatomite	lb.	@	

Glue, high grade.....lb.	\$0.35	@\$0.45
medium.....lb.	.29	@ .34
low grade.....lb.	.21	@ .25
Graphite, flake (400-pound bbl.).....lb.	.10	@ .25
amorphous.....lb.	.04	@ .08
Ground glass FF. (bbls.).....lb.	.05	@
Infusorial earth (powdered).....ton	60.00	@
(bolted).....ton	65.00	@
Liquid rubber.....lb.	.16½	@
Mica, powdered.....lb.	.15	@
Pumice stone, powdered (bbl.).....lb.	.05	@
Rotten stone, powdered.....lb.		@
Rubber paste.....lb.		@
Silica, gold bond.....ton	45.00	@
silver bond.....ton	25.00	@
Soap bark.....lb.	.24	@
Soapstone, powdered gray (carload).....ton	12.00	@
Starch, powdered corn.....cwt.	2.68	@
Talc, powdered soapstone.....ton	18.00	@ 25.00
Terra blanche.....ton		@
Tripoli earth, air-floated, cream or rose (factory).....ton	35.00	@
white (factory).....ton	.40	@
Tyre-lith.....ton	100.00	@
Whiting, Alba (carloads).....cwt.	.75	@ .90
Columbia.....cwt.		@
commercial.....ton	25.00	@
Danish.....ton	20.00	@
English cliffstone.....cwt.	2.00	@
gilders.....cwt.	1.45	@ 1.90
Paris, white, American.....ton	25.00	@
Quaker.....ton	13.00	@
Super.....ton		@
Wood pulp, imported.....lb.		@
XXX.....ton	45.00	@
X.....ton	40.00	@
Wood flour, American.....ton	40.00	@

MINERAL RUBBER

Elateron (c. l. factory).....ton	@
(l. c. l. factory).....ton	@
Gilsonite.....ton	70.00 @
Genasco (c. l. factory).....ton	62.50 @
(l. c. l. factory).....ton	64.50 @
Hard hydrocarbon.....ton	42.00 @
Soft hydrocarbon.....ton	40.00 @
K-X.....ton	@
K. M. R.....ton	@
M. R. X.....ton	@
Pioneer (c. l. factory).....ton	60.00 @
(l. c. l. factory).....ton	65.00 @
Raven M. R.....ton	@
Refined Elaterite.....ton	@
118/320 M. P. hydrocarbon (c. l. factory).....ton	50.00 @ 55.00
(l. c. l. factory).....ton	57.50 @
100/310 M. P. hydrocarbon (c. l. factory).....ton	40.00 @
(l. c. l. factory).....ton	45.00 @
States "A" (c. l. factory).....ton	55.00 @
No. 1 (c. l. factory).....ton	45.00 @
Robertson, M. R. pulverized (c. l. factory).....ton	95.00 @
M. R. pulverized (l. c. l. factory).....ton	97.50 @
M. R. (c. l. factory).....ton	72.50 @
M. R. (l. c. l. factory).....ton	75.00 @
Rubrax (factory).....ton	50.00 @ 60.00
Synpro, granulated.....ton	87.50 @
Walpole rubber flux (factory).....lb.	@

OILS

Aviolas compound.....lb.	.16	@
Castor, No. 1, U. S. P.....lb.	.12	@
No. 3, U. S. P.....lb.	.11	@
Corn.....lb.	.10	@
Cotton.....lb.	.10	@
Glycerine (98 per cent).....lb.	.23	@
Linseed, raw (carloads).....gal.	.75	@
Linseed compound.....gal.	@	
Palmoline.....lb.	.14	@ .16
Palm niger.....lb.	.09	@
Palm "Lagoe".....lb.	.11½	@
Palm special.....lb.	@	
Peanut.....lb.	.14	@
Petrolatum.....lb.	.10	@
Petrolatum, sticky.....lb.	.12	@

Petroleum grease.....lb.	\$0.07½ @ \$0.09
Pine, steam distilled.....gal.	1.25 @ 1.45
Rapeseed, refined.....lb.	.16 @
blown.....lb.	.17 @
Rosin.....gal.	.40 @ .75
Synpro.....gal.	.48 @ .80
Soya bean.....lb.	.10 @
Tar.....gal.	.35 @ .39

RESINS AND PITCHES

Balsam, fir.....gal.	2.00 @
Castella gum.....lb.	.50 @
Cumar resin, hard.....lb.	.12 @ .16
soft.....lb.	.09 @ .13
Tar, retort.....bbl.	14.50 @ 15.00
kiln.....bbl.	14.50 @ 15.00
Pitch, Burgundy.....lb.	.06 @
coal tar.....lb.	.01½ @
pine tar.....lb.	.04 @
ponto.....lb.	.14 @
Rosin, K.....280 lbs.	9.90 @
strained.....280 lbs.	8.95 @
Shellac, fine orange.....lb.	1.20 @

SOLVENTS

Acetone (98.99 per cent drums).....lb.	.20 @
methyl (drums).....gal.	@
Benzol (water white, 90%).....gal.	.28 @ .34
Beta-naphthol.....lb.	.37 @
Carbon bisulphide (drums).....lb.	@
tetrachloride (drums).....lb.	.12½ @ .14
Naphtha, motor gasoline (steel bbls.).....gal.	.31 @
73 @ 76 degrees (steel bbls.).....gal.	.41 @
70 @ 72 (steel bbls.).....gal.	.39 @
68 @ 70 degrees (steel bbls.).....gal.	.38 @
V. M. & P. (steel bbls.).....gal.	.30 @
solvent.....gal.	.30 @
Toluol, pure.....gal.	.30 @ .36
Turpentine, spirits.....gal.	.75 @
wood.....gal.	.73 @
Osmaco reducer.....gal.	@
Xylol, pure.....gal.	.45 @ .50½
commercial.....gal.	.28 @ .34

SUBSTITUTES

Black.....lb.	.09 @ .18
White.....lb.	.10 @ .20
Brown.....lb.	.14 @ .19
Brown factice.....lb.	.08 @ .14
White factice.....lb.	.09 @ .15
Paragol, soft and medium (carloads).....cwt.	10.81 @
hard.....cwt.	10.81 @

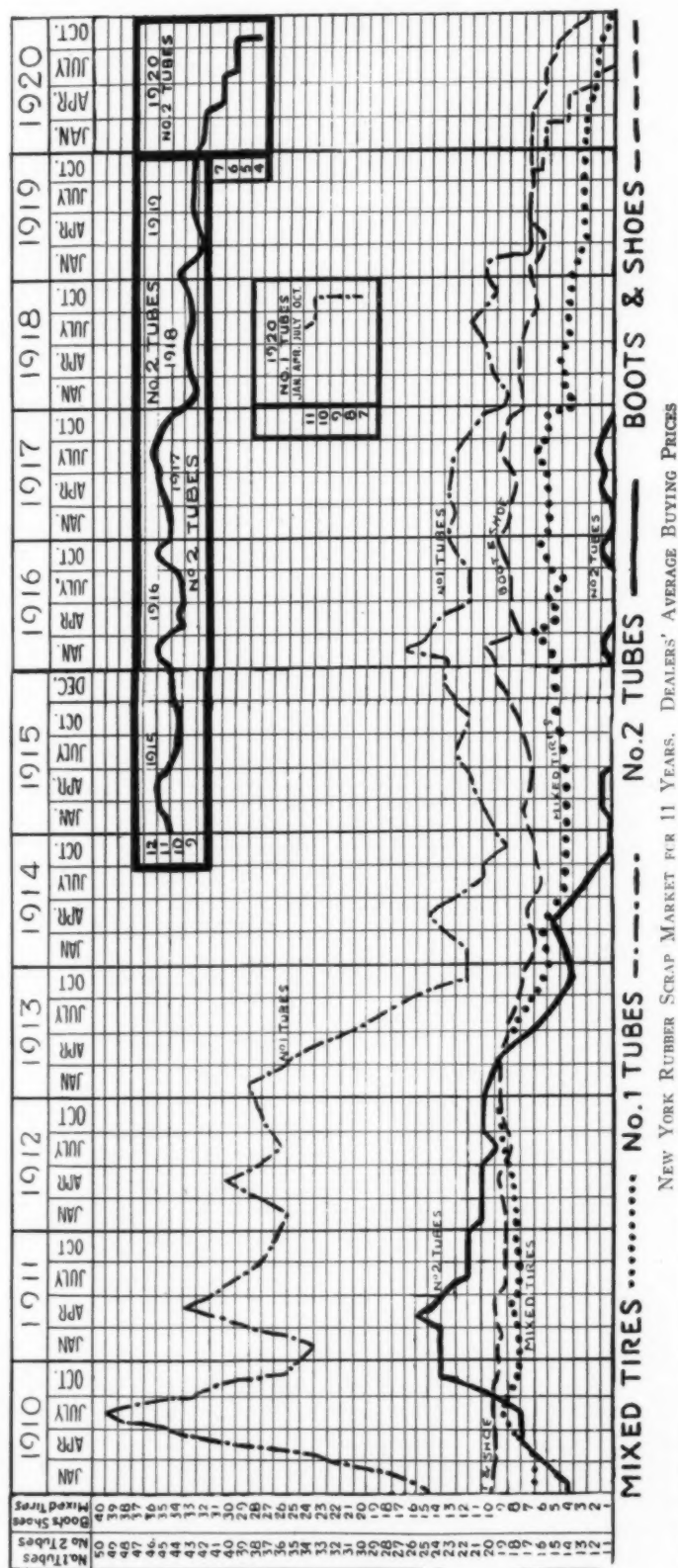
VULCANIZING INGREDIENTS

Lead, black hyposulphite (Black Hypo).....lb.	@
Orange mineral, domestic.....lb.	.12½ @
Sulphur chloride (jugs).....lb.	.20 @
(drums).....lb.	.08 @
Sulphur, flour, Brooklyn brand (carloads).....cwt.	2.65 @ 2.90
Brooklyn brand (l. c. l.).....cwt.	2.95 @ 3.45
Bergenport, soft (c. l. factory).....cwt.	2.85 @
superfine (carloads, factory).....cwt.	@

(See also Colors—Antimony.)

WAXES

Wax, beeswax, white.....lb.	.67 @
ceresin, white.....lb.	.16 @
carnauba.....lb.	.22 @
Montan.....lb.	.10 @
ozokerite, black.....lb.	.65 @
green.....lb.	.65 @
paraffine, 115° m. p.....lb.	.12½ @
120° m. p.....lb.	.12½ @
125° m. p.....lb.	.13½ @
130° m. p.....lb.	.14½ @
Phenanthrene.....lb.	.08 @ .10
Sweet wax.....lb.	.15 @



Courtesy of The Waste Trade Journal, New York City

THE MARKET FOR RUBBER SCRAP

NEW YORK

IF POSSIBLE, the rubber scrap market is even quieter than a month ago and prices remain nominal and practically unchanged. The firming up of prices for crude rubber has had the effect of awakening renewed hope, which, however, is destined to disappointment. Rubber scrap and reclaimed rubber prices can only recover with the renewal of activity in the industrial field in general. These materials are special and subsidiary and bound to be most active when competitive rubber goods manufacturing is in full swing.

Scrap metals and paper stock appear to be the present salvation of the scrap men. The following prices are all nominal. There is really no market.

QUOTATIONS FOR CARLOAD LOTS DELIVERED

Prices subject to change without notice

JANUARY 24, 1921

BOOTS AND SHOES:

Arctic tops	lb	*\$0.075 @	
Boots and shoes	lb	*.05 1/4 @	.05 1/4
Trimmed arctics	lb	*.04 1/4 @	.05 1/4
Untrimmed arctics	lb	*.03 1/4 @	.04 1/4

HARD RUBBER:

Battery jars, black compound	lb	*.01 @	.01 1/4
No. 1, bright fracture	lb	*.23 @	.24

INNER TUBES:

No. 1	lb	*.09 1/2 @	.10 1/2
Compounded	lb	*.05 1/2 @	.06 1/2
Red	lb	*.05 @	.06

MECHANICALS:

Black scrap, mixed, No. 1	lb	*.03 1/2 @	.04
No. 2	lb	*.02 1/2 @	.02 1/4
Car springs	lb	*.03 1/2 @	.04
Heels	lb	*.03 @	.03 1/2
Horse-shoe pads	lb	*.03 @	.03 1/2
Hose, air brake	lb	*.03 1/2 @	.03 1/4
fire, cotton lined	lb	*.01 1/2 @	.01 1/4
garden	lb	*.01 1/2 @	.01 1/4
Insulated wire stripping, free from fiber	lb	*.03 1/2 @	.04
Matting	lb	*.01 1/4 @	.01 1/2
Red packing	lb	*.05 1/2 @	.06
Red scrap, No. 1	lb	*.09 @	.10
No. 2	lb	*.06 1/4 @	.07 1/4
White scrap, No. 2	lb	*.08 @	.09
No. 1	lb	*.10 @	.11

TIRES:

PNEUMATIC—

Auto peelings	lb	*.03 1/4 @	.04 1/4
Bicycle	lb	*.02 1/4 @	.02 1/4
Standard white auto	lb	*.02 1/2 @	.03 1/2
Mixed auto	lb	*.01 1/4 @	.02 1/4
Stripped, unguaranteed	lb	*.01 @	.02 1/2
White, G. & G., M. & W., and U. S.	lb	*.03 @	.03 1/4

SOLID—

Carriage	lb	*.03 @	.03 1/4
Truck	lb	*.02 1/2 @	.02 1/4

*Nominal.

THE "HAN-DE-PACH" INNER TUBE REPAIR OUTFIT

A new quick tire-repair outfit called "Han-de-Pach" is now being offered to the trade. It contains gum, cement and a metal rasp for roughening the tube without danger of injury. The "Han-de-Pach" cement is said to contain such portions of solvent and curing ingredients that it can be used with small portable vulcanizers. "Han-de-Pach" stretches with the tube and will not come off, if properly applied. The outfit is neatly and attractively packed and retails at a popular price.—The Palmer Tire Co., Sixth and Van Buren streets, Topeka, Kansas.



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